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INDIANA STATE COLLEGE
INDIANA, PENNSYLVANIA

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MASTER'S DEGREE

Graduate Sessions

Summer 1965

Pre: June 10 - June 23

Main: June 29 - August 5

Post: August 9 - August 20

Workshops - Special Features

Full-time and Part-time programs for
1965-1966 Academic Year

CERTIFICATION

1966 Summer Sessions
Academic Year 1966-67

The Graduate School Annual Bulletin

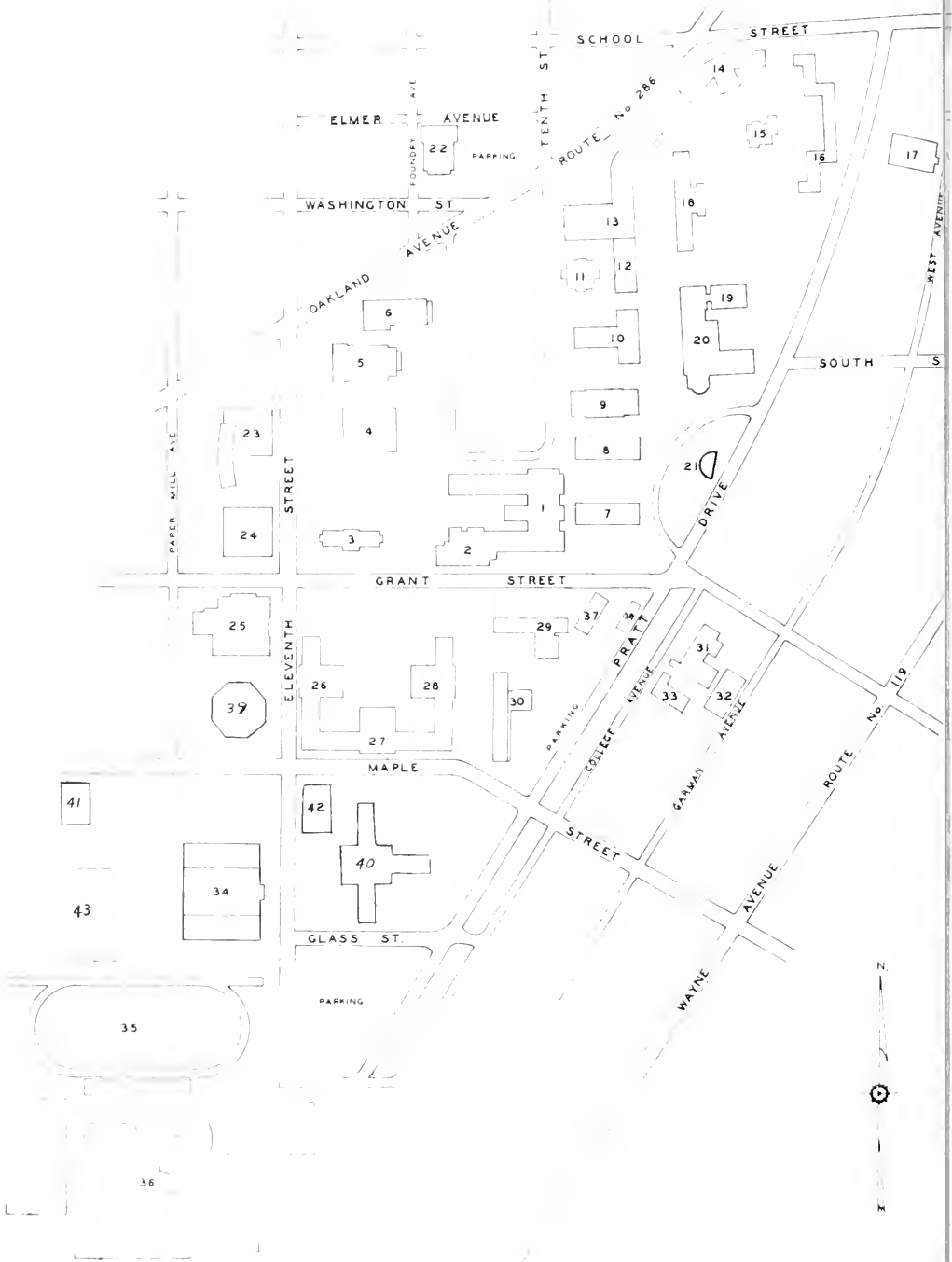
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KEY TO BUILDINGS

- | | | | | |
|------------------------------|--------------------------------|-------------------------------|-------------------------------------|---|
| 1. John Sutton Hall | 11. Wilson Hall | 21. Flagstone Theater | 31. Boiler Plant | 39. Learning & Research Center (proposed) |
| 2. Thomas Sutton Hall | 12. Walsh Hall | 22. Uhler Hall | 32. Maintenance Building (proposed) | 40. Men's Dormitory (proposed) |
| 3. Clark Hall | 13. Weyandt Hall | 23. Cogswell Hall | 33. Shop Building | 41. Military Hall (proposed) |
| 4. Stables Library | 14. Elkin Hall | 24. Classroom Hall (proposed) | 34. Memorial Hall (Field House) | 42. Health Center (proposed) |
| 5. Fisher Auditorium | 15. Art Ed. Annex | 25. Foster Dining Hall | 35. Miller Stadium | 43. Tennis Courts |
| 6. Waller Gymnasium | 16. Whitmyre Hall | 26. Mack Hall | 36. Athletic Fields | |
| 7. Ackerman Hall | 17. Student Union | 27. Stewart Hall | 37. Military Hall | |
| 8. Classroom Hall (proposed) | 18. Gordon Hall | 28. Turnbull Hall | 38. Greenhouse | |
| 9. McElhoney Hall | 19. Special Education Building | 29. Wahr Hall | | |
| 10. Leonard Hall | 20. Keith School | 30. Langham Hall | | |

The Graduate School

BULLETIN

VOLUME 71

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NUMBER 6

INDIANA STATE COLLEGE
INDIANA, PENNSYLVANIA

Graduate Catalog Number

1966 - 1967



THIS COLLEGE IS ACCREDITED BY THE NATIONAL COUNCIL FOR ACCREDITATION OF TEACHER EDUCATION FOR THE PREPARATION OF ELEMENTARY AND SECONDARY TEACHERS AND TEACHERS IN THE SPECIAL FIELDS OF ART, BUSINESS, HOME ECONOMICS, MUSIC, DRIVER AND SAFETY EDUCATION, DENTAL HYGIENISTS, AND PUBLIC SCHOOL NURSES WITH THE MASTER'S DEGREE AS THE HIGHEST DEGREE APPROVED, AND BY THE MIDDLE STATES ASSOCIATION OF COLLEGES AND SECONDARY SCHOOLS.

Issued Annually by the Trustees of the Indiana State College, Indiana, Pennsylvania. Entered as second-class matter, June 30, 1913, at the Post Office in Indiana, Pennsylvania, under Act of Congress, August 24, 1912.

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CALENDAR

June 1, 1966 — June 1, 1967

Pre-Session, 1966

- | | |
|------|--|
| May | 15—Tentative class schedule for pre-session must be submitted by this date. |
| June | 1—Students who plan to take graduate work during pre-session must have filed an application for graduate study on or before this date. |
| June | 1—Prospective August graduates must have filed an application for graduation on or before this date. |
| June | 3—Payment of fees for all graduate students in pre-session must be completed on or before this date. |
| June | 9—Pre-session classes begin. |
| June | 22—Pre-session classes terminate. |

Main Session, 1966

- | | |
|--------|--|
| June | 15—Students who plan to take graduate work during main session must have filed an application for graduate study on or before this date. |
| June | 15—Tentative class schedule for main session must be submitted by this date. |
| June | 22—Payment of fees for all graduate students in main session must be completed on or before this date. |
| June | 28—Main session classes begin. |
| July | 1—Final draft of research project or thesis due for August graduates. |
| August | 4—Main session classes terminate. |

Post-Session, 1966

- | | |
|--------|--|
| July | 20—Students who plan to take graduate work during post-session must have filed an application for graduate study on or before this date. |
| July | 20—Tentative class schedule for post-session must be submitted by this date. |
| August | 3—Payment of fees for all graduate students in post-session must be completed by this date. |
| August | 8—Post-session classes begin. |
| August | 19—Post-session classes terminate. |
| August | 22—Summer Commencement. |

Fall Semester, 1966

- August 15—Tentative class schedule for fall semester must be submitted by this date.
- August 15—Students who plan to take graduate work during the fall semester must have filed an application for graduate study on or before this date.
- September 3—Payment of fees for all graduate students in fall semester must be completed by this date.
- September 13—Fall semester evening classes begin.
- September 17—Fall semester Saturday classes begin.
- October 1—Prospective January graduates must have filed an application for graduation on or before this date.
- November 22—Thanksgiving vacation begins.
- November 28—Thanksgiving vacation ends.
- December 1—Final draft of research project or thesis due for January graduates.
- December 20—Christmas vacation begins.
- January 2—Christmas vacation ends.
- January 15—Winter Commencement.
- January 15—Semester ends.

Spring Semester, 1967

- December 15—Tentative class schedule for spring semester must be submitted by this date.
- January 1—Students who plan to take graduate work during the spring semester must have filed an application for graduate study on or before this date.
- January 25—Payment of fees for all graduate students in spring semester must be completed by this date.
- January 31—Spring semester evening classes begin.
- February 4—Spring semester Saturday classes begin.
- March 1—Prospective May graduates must have filed an application for graduation on or before this date.
- April 1—Final draft of research project or thesis due for May graduates.
- March 24—Easter vacation begins.
- April 1—Easter vacation ends.
- May 20—Classes terminate.
- May 28—Commencement.
- May 28—Semester ends.

GRADUATE PROGRAM — SPRING, 1966

TUESDAY EVENINGS

(5:30-7:10 P.M.)

Art	562	Graduate Studio in Oil Painting I
Bus	531	Principles of Investment in Securities
Bus	570	Economic Backgrounds of Business (Non-Bus Majors)
Eng	531D	Whitman and Twain
Geog	522	Political Geography
Math	530	Differential Equations II
Psy	530	Psychology of Growth and Development

(7:30-9:10 P.M.)

Art	511	Curriculum Development, Supervision, and Administration in Art
CnEd	537	Interview Techniques in Counseling
Ed	515	Elements of Research
Math	511	Seminar in Mathematics II
Phil	581	Problems of Logic

WEDNESDAY EVENINGS

(5:30-7:10 P.M.)

Art	561	Graduate Studio in Drawing
CnEd	539	Group Procedures in Guidance
Ed	516	Statistical Methods in Education I
Eng	542	Contemporary British Novelists
Math	573	Topology
Mus	506	Music Literature of the Late Romantic Era
Psy	539	Psychology of the Mentally Retarded Child
Psy	540	Advanced Mental Hygiene
SS	541	Modern European Problems

(7:30-9:10 P.M.)

CnEd	531	Philosophy and Principles of Guidance
El	541	Special Problems in Elementary Social Studies
El	545	Experimental Studies in Art Education
Geog	532	Mediterranean World Seminar
Math	581	Mathematical Statistics

THURSDAY EVENINGS

(5:30-7:10 P.M.)

Art	527	Renaissance Art
Ed	531	Reading Problems of Jr.-Sr. High School Students
Ed	534	Diagnosis and Remediation in Reading
Eng	531E	Poe and Melville
Geog	535	Australia and Pacific Islands
Math	502	Digital Computers and Compiler Systems
Mus	534	Comparative Instrumental Methods
Phys	570	Electricity and Magnetism II
Biol	561	Plant Structure
SS	533	Social Intellectual History of U. S.

(7:30-9:10 P.M.)

Art	522	Art in America
CnEd	535	Study of the Individual
Ed	512	Philosophical Foundations of Education
El	542	Arithmetic in the Elementary Schools
Mus	512	Advanced Orchestration
Sci	587	Zoology in Elementary Science Education
Biol	512	Comparative Anatomy II
Biol	573	General Bacteriology II
Chem	547	Biochemistry II

SATURDAY MORNINGS**(9:00-10:40 A.M.)**

Art	568	Graduate Studio in Print Making I
Bus	550	Principles and Problems of Business Education
CnEd	534	Evaluative Methods in Guidance II
CnEd	536	The Information Service in Guidance
Ed	513	Social Foundations of Education
El	544	Recent Trends in Elementary Language Arts
Eng	510	Bibliographical Methods
Geog	521	Advanced Human Geography (Non-Geog Majors)
Math	543	Vector Analysis I
ElSc	581	Chemistry II
SS	554	Economic Seminar

(11:00-12:40 P.M.)

Art	547	Graduate Studio in Jewelry and Metal Work I
Bus	561	Improvement of Instruction in Basic Business Courses
CnEd	538	Organization and Administration of Guidance Services
Ed	515	Elements of Research
Eng	534	Types of the Novel
Geog	550	Reading and Research
Math	564	Linear Algebra II
Psy	533	Psychology of Personality
SS	561	Social Policy Studies (Non-Soc Sci Majors)
SS	546	History of Europe 1815-1915 3:00 M.W.F. (3 s.h.)
SS	552	Comparative Economic Systems 4:00 M.W.F. (3 s.h.)
SS	592	Comparative Cultures, 3:00 P.M., M.W.F. (3 s.h.)
Mus	540-591	will be offered as needed.

Geog 550 Geographic Reading may be scheduled on an individual basis through the Chairman of the department.

TENTATIVE PROGRAM OF CLASSES FOR PRE-SUMMER SESSION, 1966

Student may schedule one course only. The student is expected to be on campus from 8:00 to 2:00 P.M. daily.

Art	513	Research and Philosophy in Art Education
Art	524	Art of the East
Art	525	Architectural Influences in a Contemporary Society
Bus	534	Consumer Economic Problems
CnEd	531	Philosophy and Principles of Guidance
CnEd	533	Evaluative Methods in Guidance I
CnEd	536	The Information Service in Guidance
Ed	511	Historical Foundations of Education
Ed	512	Philosophical Foundations of Education
Ed	513	Social Foundations of Education
Ed	515	Elements of Research (two sections)
Ed	531	Reading Problems of Jr.-Sr. High School Students
Ed	534	Diagnosis and Remediation in Reading
Ed	540	Supervision of Student Teaching
El	531	Curriculum Problems in Elementary Education
El	542	Arithmetic in the Elementary School
El	543	Resource Materials in Elementary Science
Eng	528	Milton
Eng	529	The Romantic Poets
Eng	539	The Metaphysical Poets
Eng	544	Seminar in the Psychology of Language
Geog	526	India, Pakistan, and South Asia
Geog	565	Aero-Space Workshop
HE	521	Problems in Family Living

HPe	521	Advanced Seminar in Health and Safety
Math	510	Seminar in Mathematics I
Mus	521	Music Literature and Materials (Non-Music Majors)
Mus	531	Administrative Problems in Music Education
Psy	531	Psychology of Exceptional Children
Psy	532	Studies in Pupil Adjustment
Biol	553	Principles of Animal Taxonomy
Biol	569	Ecology
Sci	572	Experimental Techniques in Physics and Chemistry
SS	510	New Viewpoints in Social Science Instruction
SS	542	Contemporary Latin American Problems
SS	545	History of Russia (3 wks. - 3 credits)
SS	546	History of Europe 1815-1914 (3 wks. - 3 credits)
SS	555	Industrial Relations (3 wks. - 3 credits)
SS	562	Deviant Behavior
SS	571	Foreign Policy Studies

TENTATIVE PROGRAM OF CLASSES FOR MAIN SUMMER SESSION, 1966

During main session the student may schedule one, two, or three courses to total not more than six semester hours. Student is expected to be on campus from 8:00 A.M. until 2:00 P.M. daily.

Art	511	Curriculum Development, Supervision and Administration in Art Education.....	2
Art	521	Contemporary Movements in Art (Non-Art Majors).....	2
Art	544	Graduate Studio in Fabrics I.....	3
Art	545	Graduate Studio in Fabrics II.....	3
Art	546	Graduate Studio in Fabrics III.....	3
Art	550	Graduate Studio in Sculpture I.....	1
Art	551	Graduate Studio in Sculpture II.....	1
Art	552	Graduate Studio in Sculpture III.....	1
Art	553	Graduate Studio in Crafts I.....	2
Art	554	Graduate Studio in Crafts II.....	2
Art	555	Graduate Studio in Crafts III.....	2
Art	556	Graduate Studio in Theater Arts (6 credits).....	All day
Art	565	Graduate Studio in Water Color I.....	4
Art	566	Graduate Studio in Water Color II.....	4
Art	567	Graduate Studio in Water Color III.....	4
Art	571	Graduate Studio in Mural Painting.....	3
Bus	501	Principles of Tax Accounting.....	3
Bus	503	Financial Statement Analysis.....	1
Bus	510	Business Communications and Report Writing.....	2
Bus	520	Retail Organization and Management.....	1
Bus	531	Principles of Investment in Securities.....	2
Bus	532	Current Business Economic Problems.....	1
Bus	536	Automated Data Processing (4 credits).....	3-4
Bus	552	Seminar in Business Education.....	4
Bus	560	Improvement of Instruction in Secretarial Courses.....	2
Bus	561	Improvement of Instruction in Basic Business Courses.....	3
Bus	570	Economic Backgrounds of Business.....	3
CnEd	525	Guidance Services in the Elementary School.....	1
CnEd	531	Philosophy & Principles of Guidance.....	2
CnEd	533	Evaluative Methods in Guidance I.....	2
CnEd	534	Evaluative Methods in Guidance II.....	3
CnEd	535	Study of the Individual.....	4
CnEd	536	The Information Service in Guidance.....	3
CnEd	537	Interview Techniques in Counseling.....	1
CnEd	538	Organization and Administration of Guidance Services.....	4
CnEd	539	Group Procedures in Guidance.....	1
Ed	511	Historical Foundations of Education.....	3
Ed	512	Philosophical Foundations of Education.....	4

Ed	513	Social Foundations of Education.....	1-2
Ed	515	Elements of Research	1-3
Ed	516	Statistical Methods in Education I.....	1-2
Ed	517	Statistical Methods in Education II.....	1
Ed	518	Seminar in Sensory & Audio-Visual Materials.....	1
Ed	522	Principles and Practices in Speech Improvement.....	1
Ed	535	Theory and Clinical Procedures in Reading.....	2-3
El	533	Reading Disabilities of Elementary School Children..	2-4
El	541	Special Problems in Elementary Social Studies.....	1
El	544	Recent Trends in Elementary Language Arts.....	2
El	546	Modern Procedures & Skills in Elementary Music....	3
El	547	Resource Materials in Children's Literature.....	3
Eng	510	Bibliographical Methods in English.....	1
Eng	521	Modern European Fiction	3
Eng	531C	Major Writers: Thomas Hardy	2
Eng	531F	Major Writers: Henry James	1
Eng	557	Modern American Poetry	4
Eng	560	The Classics in Translation.....	2
FL	521	Language and Society	2
Geog	528	South America	1
Geog	564	Region Field Studies (to be off campus traveling for Four Weeks to the Southeastern United States)...	2
Math	501	Fortran	1
Math	521	Basic Concepts in Mathematics (Non-Math Majors)..	4
Math	526	Fundamental Concepts in Analysis.....	2
Math	529	Differential Equations I.....	3
Math	531	Advanced Calculus I	2
Math	533	Functions of a Complex Variable I.....	2
Math	539	Infinite Series I.....	3
Math	552	Number Theory	4
Math	562	Modern Algebra II	1
Math	563	Linear Algebra I	1
Math	571	Modern Geometry I	1
Math	581	Mathematical Statistics	1
Mus	502	Advanced Instrumental Conducting	2
Mus	504	Music Literature of the 18th Century	1
Mus	514	Advanced Choral Arranging	2
Mus	532	Seminar in Music Education	3
Phil	563	American Philosophic Thought	2
Psy	530	Psychology of Growth and Development.....	3
Psy	533	The Psychology of Personality	2
Psy	538	Psychology of the Mentally Gifted	3
Psy	539	Psychology of the Mentally Retarded	1
Psy	540	Advanced Mental Hygiene	2
Biol	533	Biological Literature	1
Biol	543-544	Embryology I & II (4 credits).....	2-3
Biol	562	Animal Physiology	4
Biol	576	Radiation Biology	2
Chem	565-566	Advanced Inorganic Chemistry (4 credits).....	2-3
Chem	573-574	Advanced Organic Chemistry (4 credits).....	2-3
ElSc	583-584	Physics I & II.....	2-3
ElSc	592	Elementary Science Curriculum	1
Geol	515	Mineralogy	1
Geol	570	Paleontology	3
Phys	531	Atomic Structure	1
Phys	571	Advanced Physics Laboratory	1
SS	514	Research Methodologies in Social Science.....	4
SS	531	Economic and Social History of Pennsylvania.....	1
SS	532	U. S.-British Commonwealth Relations	2
SS	544	History Seminar	1
SS	551	International Economics (3 s.h.)	3
SS	552	Comparative Economic Systems (3 s.h.).....	2

SS	561	Social Policy Studies (Non-Social Science Majors)	4
SS	573	Regional Political Studies	3
SS	591	Studies in Anthropology	2

TENTATIVE PROGRAM OF CLASSES FOR POST-SUMMER SESSION, 1966

Student may schedule one course only. The student is expected to be on campus from 8:00 A.M. to 2:00 P.M. daily.

Art	526	Exotic Art—Art of Latin America	
Art	527	Renaissance Art	
Art	528	World Art Since 1875	
Bus	550	Principles and Problems of Business Education	
CnEd	535	Study of the Individual	
CnEd	539	Group Procedures in Guidance	
Ed	513	Social Foundations of Education	
Ed	515	Elements of Research (two sections)	
Ed	517	Statistical Methods in Education II	
Ed	518	Seminar in Sensory & Audio-Visual Materials	
El	531	Curriculum Problems in Elementary Education	
El	541	Special Problems in Elementary Social Studies	
Eng	526	Shakespeare and His Contemporaries	
Eng	531B	Major Writers: Faulkner and Hemingway	
Eng	535	Criticism	
Geog	550	Reading in Geography	
Geog	557	Geographic Research	
HPE	530	Workshop in Community School Health Education	
Math	511	Seminar in Mathematics II	
Math	521	Basic Concepts in Mathematics	
Mus	534	Comparative Instrumental Methods	
Psy	530	Psychology of Growth and Development	
Biol	568	Demonstration in Biology	
Geol	535	Geomorphology	
SS	521	Contemporary American Issues (Non-Social Science Majors)	
SS	541	Modern European Problems	
SS	543	Modern Asian-African Problems	
SS	553	Contemporary Economic Issues	
SS	563	Intergroup Relations	
SS	572	Comparative Political Studies	
SS	592	Comparative Cultures (3 wks. - 3 credits)	

TENTATIVE PROGRAM OF CLASSES FALL, 1966

TUESDAY EVENINGS (5:30-7:10 P.M.)

Art	521	Contemporary Movements in Art (Non-Art Majors)	
CnEd	533	Evaluative Methods in Guidance I	
CnEd	536	The Information Service in Guidance	
Eng	531D	Major Writers: Whitman and Twain	
Geog	555	Cartography for Thesis Writing	
Math	582	Theory of Probability	
SS	572	Comparative Political Studies	

(7:30-9:10 P.M.)

Art	513	Research and Philosophy in Art Education	
CnEd	535	Study of the Individual	
Math	510	Seminar in Mathematics I	
Math	521	Basic Concepts in Mathematics (Non-Math Majors)	

WEDNESDAY EVENINGS

(5:30-7:10 P.M.)

Art	561	Graduate Studio in Drawing
CnEd	525	Guidance Services in the Elementary School
El	533	Reading Disabilities of Elementary School Children
Eng	538	Victorian Prose
Math	533	Functions of a Complex Variable I
Mus	505	Music Literature of the Early Romantic Era
Phil	581	Problems of Logic
SS	561	Social Policy Studies (Non-Social Science Majors)

(7:30-9:10 P.M.)

Art	510	Art and the Exceptional Child
El	547	Resource Materials in Children's Literature
Math	563	Linear Algebra I
Mus	512	Advanced Orchestration
Psy	530	Psychology of Growth and Development
SS	514	Research Methodologies in Social Science

THURSDAY EVENINGS

(5:30-7:10 P.M.)

Art	525	Architectural Influences in Contemporary Society
Bus	551	Administration & Supervision of Business Education
Ed	513	Social Foundations of Education
Eng	510	Bibliographical Methods in English
Geog	523	Urban Geography
Math	501	Fortran
Mus	533	Comparative Choral Methods
Psy	532	Studies in Pupil Adjustment
Astr	536	The Sidereal Universe
*Biol	551-552	Taxonomy of Plants I & II
Biol	555	Principles of Plant-Animal Distribution
*Biol	563	Physiology of Plants
*Chem	548-549	Physical Chemistry I & II
Phys	567-568	Analytical Mechanics I & II
Sci	573-574	Computations in Physics and Chemistry I
SS	593	Science of Culture

(7:30-9:10 P.M.)

Art	543	Exhibition Techniques
CnEd	537	Interview Techniques in Counseling
Ed	515	Elements of Research
FL	521	Language and Society
Math	571	Modern Geometry I

SATURDAY MORNINGS

(9:00-10:40 A.M.)

Art	547	Graduate Studio in Jewelry and Metal Work I
Bus	530	Money and Banking
Bus	570	Economic Backgrounds of Business (Non-Business Majors)
CnEd	539	Group Procedures in Guidance
Ed	516	Statistical Methods in Education I
Eng	571	Literature: Methods of Literary Analysis
Geog	530	U.S.S.R. Seminar
Math	531	Advanced Calculus I
SS	574	Political Science Seminar

(11:00 A.M.-12:40 P.M.)

Art	523	Seminar in Art Criticism
Art	540-541-542	Graduate Studio in Ceramics I, II, III
Bus	511	Advanced Shorthand for Teachers

CnEd	531	Philosophy and Principles of Guidance
Ed	512	Philosophical Foundations of Education
Eng	556	Modern British Poetry
Geog	563	Field Techniques in Geography
Math	561	Modern Algebra I
Psy	540	Advanced Mental Hygiene
SS	545	History of Russia (3 credits) 4:00 MWF
SS	552	Comparative Economic Systems (3 credits) 3:00 MWF
Mus	540-591	will be offered as needed.

Geog 550 Geographic Reading may be scheduled on an individual basis through the Chairman of the department.

TENTATIVE PROGRAM OF CLASSES SPRING, 1967

TUESDAY EVENINGS (5:30-7:10 P.M.)

Art	514-545-546	Graduate Studio in Fabrics I, II, III
Bus	512	Office Organization and Management
Bus	562	Improvement of Instruction in Bookkeeping & Business Arith.
Eng	555	Realism in the American Novel
Math	503	Seminar: Computer Applications in Research
Psy	530	Psychology of Growth and Development

(7:30-9:10 P.M.)

Art	527	Renaissance Art
CnEd	537	Interview Techniques in Counseling
Ed	515	Elements of Research
Geog	527	Mexico, Middle America, and West Indies
Math	511	Seminar in Mathematics II
SS	595	Pre-History

WEDNESDAY EVENINGS (5:30-7:10 P.M.)

Art	511	Curriculum Development, Supervision, and Administration in Art
Bus	500	Accounting Systems
CnEd	539	Group Procedures in Guidance
Ed	516	Statistical Methods in Education I
El	542	Arithmetic in the Elementary School
Eng	526	Shakespeare and His Contemporaries
Math	534	Functions of a Complex Variable II
Mus	506	Music Literature of the Late Romantic Era
Psy	540	Advanced Mental Hygiene
SS	521	Contemporary American Issues (Non-Social Science Majors)

(7:30-9:10 P.M.)

CnEd	531	Philosophy and Principles of Guidance
El	541	Special Problems in Elementary Social Studies
Math	565	Theory of Groups
Mus	513	Advanced Band Scoring
Phil	582	Problems in Ethics

THURSDAY EVENINGS (5:30-7:10 P.M.)

Art	522	Art in America
Ed	531	Reading Problems of Jr.-Sr. High School Students
Ed	534	Diagnosis and Remediation in Reading
Eng	510	Bibliographical Methods in English
Geog	537	Eastern United States
Math	502	Digital Computers and Compiler Systems

Mus	534	Comparative Instrumental Methods
°Biol	574	Genetics
°Phys	567-568	Analytical Mechanics I & II
SS	563	Intergroup Relations

(7:30-9:10 P.M.)

Art	526	Exotic Art—Art of Latin America
CnEd	535	Study of the Individual
Ed	512	Philosophical Foundations of Education
Math	572	Modern Geometry II
Mus	521	Music Literature and Materials (Non-Music Majors)
°Biol	551-552	Taxonomy of Plants I & II
°Chem	548-549	Physical Chemistry I & II
°ElSc	589	Geology
SS	543	Modern Asian-African Problems

SATURDAY MORNINGS

(9:00-10:40 A.M.)

Art	550-551-552	Graduate Studio in Sculpture I, II, III
Bus	533	Case Problems in Business Law
CnEd	534	Evaluative Methods in Guidance II
CnEd	536	The Information Service in Guidance
Ed	513	Social Foundations of Education
El	544	Recent Trends in Elementary Language Arts
Eng	541	The Rise of American Regionalism
Geog	556	Map and Photo Interpretation
Math	532	Advanced Calculus II
°Biol	545	Microtechniques
Sci	573-574	Computations in Physics and Chemistry II
SS	564	Sociology Seminar

(11:00 A.M.-12:40 P.M.)

Art	571	Graduate Studio in Mural Painting
Bus	521	Principles of Marketing
CnEd	538	Organization and Administration of Guidance Services
Ed	515	Elements of Research
El	545	Experimental Studies in Art Education
Eng	572	Composition
Geog	552	World Resources
Math	562	Modern Algebra II
Psy	533	Psychology of Personality
SS	547	History of England (3 credits) 3:00 MWF
SS	555	Industrial Relations (3 credits) 4:00 MWF
Mus	540-591	will be offered as needed.

Geog 550 Geographic Reading may be scheduled on an individual basis through the Chairman of the department.

Courses marked (°) include a laboratory period and a total of three hours per week.

THE GRADUATE SCHOOL

Indiana State College
Indiana, Pennsylvania

GENERAL INFORMATION

Location

Indiana State College is located in Indiana, Pennsylvania, a community with a population of approximately 20,000. Indiana is 30 miles north of Johnstown and 60 miles northeast of Pittsburgh. Situated in the foothills of the Allegheny Mountains, Indiana has a climate that is conducive to study the year round.

College Catalog

Detailed information about the College, its academic requirements, the names of the faculty, and the facilities are described in the general catalog. This publication may be obtained by writing to the Registrar.

Library

The College Library provides excellent facilities for graduate work with professional librarians readily available for assisting with specialized reference work.

The present book collection of over 125,000 volumes is supplemented by extensive holdings of periodicals, microfilms, microcards, curriculum materials, federal and state documents, association publication, and phonograph records.

The Rhodes R. Stabley Library was opened in 1961. It is designed to give efficient service through a uniform flow of library materials in an attractive, but functional setting. At least one professional librarian is always on duty to provide reference service.

All periodicals, reference volumes, microfilm and microcard materials are located on the main floor of the library. The book collection arrangement follows the Dewey Decimal Classification System. Books numbered 000 through 699 as well as the *reserve book collection* are located on the ground floor. Books numbered 700 through 999, fiction, the *curriculum materials collection*, the *children's literature collection*, *Pennsylvania collection*, and government documents are located on the top floor.

Graduate students are both encouraged and expected to spend time in the Library. Particular attention is given by librarians to graduate students in procurement of needed materials and the further development of proficiencies. The Library subscribes to the spirit and the letter of the *General Interlibrary Loan Code* which regulates the procurement of interlibrary loans.

With the exception of those books which are reserved for special purposes, all books circulate for two weeks; unbound periodicals for one day. Bound periodicals do not circulate. Students should register for a Library Card, which will be needed to take out library materials.

Hours: 7:45-5:00-7:00-9:00—Monday and Friday
7:45-5:00-5:00-9:30—Tuesday, Wednesday and
Thursday
7:45-5:00—Saturday
2:00-5:00—Sunday

Specific suggestions for the personal use of library materials may be found in the research manual which every graduate student is required to purchase.

Library Staff: William E. Lafranchi, Head Librarian; Paul R. Hicks, Margaret E. Gabel, Katheryne Mallino, Elizabeth S. Parnell, Marie E. Snead, Euphemia N. Waddell, Edward G. Wolf, Daniel Shively.

Placement Service

Placement is a service offered by Indiana State College to its graduates without charge. The services of the Placement Bureau are available to students who received their Master's degree or who have been accepted as candidates for the degree in the Indiana Graduate School. Graduate students wishing to take advantage of placement service should complete the necessary forms with the Director of Placement.

Laboratory School

The Laboratory School with an enrollment of 215 students from kindergarten through sixth grade provides an opportunity for graduate students to observe and to participate in problems relating to teaching.

Audio-Visual Center

The Audio-Visual Center provides graduate students with an excellent collection of films, filmstrips, and other audio-visual equipment. Students may learn how to use audio-visual materials through courses offered in this area.

History of the Graduate School

Graduate work was inaugurated at Indiana State College in September, 1957.

The Graduate School at Indiana offers work leading to the degree, Master of Education. A student may now complete the requirements for this degree by following any one of the fourteen programs. These programs are Art, Business, Elementary Education, English, Geography, Guidance, Mathematics, Music, Biology, Chemistry, Elementary Science, Physical Science, Science, and Social Science. The curriculums for these programs are explained in the following pages under the respective captions.

Admissions Policy for Graduate Study

Admission to the Graduate School at Indiana is governed by the following policy which has been established by the Graduate Council:

1. The applicant must present a Bachelor's degree from a college or university that has been accredited by the Middle States Association of Colleges and Secondary Schools or the appropriate regional accrediting agency.
2. The applicant must present a transcript of his undergraduate work showing a 2.5 honor point value for all four years of his undergraduate work. The 2.5 assumes a grade of A to have 4 honor points per credit hour, a grade of B to have 3 honor points per credit hour, and a grade of C to have 2 honor points per credit hour. If the applicant's undergraduate record does not meet this 2.5 honor point value, or if he is a graduate of an unaccredited college, he may be admitted by making a satisfactory score on an entrance qualification examination.
3. The applicant must possess a Pennsylvania Teacher's Certificate or its equivalent. This implies that a student will have an undergraduate major in the field in which he wishes to work for the Master's Degree.
4. A satisfactory recommendation must be obtained from the applicant's undergraduate department or from qualified references.
5. Students applying for the degree in Music Education must present evidence of musical maturity in a formal audition before the Graduate Committee of the Music Education Department.

Admission to Graduate Study does not automatically mean that the student is a candidate for the Master's degree at Indiana. Admission to candidacy for the degree may be granted only after six or more hours of graduate work have been completed successfully at Indiana.

Steps Necessary for Admission to Graduate Study

1. The applicant will file an application for graduate work with the Dean of the Graduate School. Write to the Dean of the Graduate School, for application forms.
2. Each applicant will present a transcript of all undergraduate work taken for the Bachelor's degree. Transcripts of previous work taken at Indiana need not be submitted.
3. Each applicant may be required to have a personal interview with the Dean of the Graduate School or an assigned faculty member.

GRADUATE RECORD EXAMINATION

The Graduate Record Examinations will be given periodically at Indiana State College. These examinations are required or recommended of candidates for admission to many American graduate schools and of applicants for graduate fellowship awards.

While these examinations are not required of all applicants for admission to graduate standing at Indiana, a good score in these tests is a very helpful credential. Some applicants are required to submit results of the Graduate Record Examination before determining their qualifications to pursue graduate work. Results of the examination should be sent to the Graduate Office.

The Graduate Record Examination may be required of applicants for scholarships or assistantships.

After September 1, 1965 the Graduate Record Examination will be required of all majors in Counselor Education in the Graduate School of Indiana State College.

A Bulletin of Information with registration form may be obtained from the Graduate Office, Indiana State College or from The Educational Testing Service, Box 955, Princeton, New Jersey 08540.

Admission to Candidacy for the Degree

The student should complete the following steps to qualify for admission to candidacy:

1. Submit an official application for admission to candidacy.
2. Submit a transcript of graduate work completed at other institutions.
3. Complete at least six semester hours of graduate work at Indiana.
4. Receive satisfactory course evaluation from the student's graduate instructors.
5. Submit a tentative program of study for the completion of the graduate program.

The application for admission to candidacy, the transcript of the graduate record, and the tentative program of study should be submitted by the student to the Dean of the Graduate School. Acceptance to candidacy requires the approval of the Dean of the Graduate School.

Semester Hours Required for the Degree

A minimum of thirty semester hours of approved graduate work beyond a Bachelor's degree is required. A well balanced, unified and complete program of study will be required regardless of the minimum credit requirement. Many students may find it

necessary to earn more than the minimum number of credits before they will be regarded ready for the degree. Indiana State College is not committed to grant a degree upon the completion of thirty credits.

Full Time-Part Time Students

It is possible for students to schedule a full time load in many of the approved programs. Ten to sixteen semester hours of work per semester is regarded a full time graduate schedule. Full time students should submit their proposed schedule for approval as early as possible. For part time students who are teaching, a maximum of four semester hours or two courses may be scheduled each semester. The number of semester hours of work obtained during summer sessions shall not exceed the number of weeks of attendance.

Application For Graduation

The student is responsible for submitting a formal written application for graduation and for fulfilling all requirements for the degree in accordance with the calendar in this bulletin.

Class Cancellation

It is the policy of the Graduate School not to cancel regularly scheduled classes because of weather conditions, nor does the School issue announcements over radio stations or in newspapers or give information through its switchboard that classes will be suspended because of such conditions. In cases of an emergency which disrupts transportation facilities or creates personal problems, students should make decisions as to attendance which appear appropriate to them in their particular circumstances.

Time Limit

Thirty semester hours must be completed within the five-year period immediately preceding the date when all the requirements for the degree are completed. Any work accepted by transfer must also fall within this period. For justifiable reasons the Graduate Council may extend the period.

Residence

A minimum of ten semester hours will be required to be taken during summer sessions. The ten hours need not be taken in any one summer but may be extended over two or more different summers. During summer study, it is assumed that the student is not employed or engaged in any other work, and that his graduate study has top priority in his schedule. A minimum of twenty-four hours must be completed on the Indiana campus either in summer or in part time or full time study during the academic year.

Scholarship Requirement

A candidate must have maintained a grade point average of 3.0 (B), in all graduate work. Only grades "A," "B," or "C" are acceptable toward a Master's degree. Marking system: grade of "A," 4 quality points; "B," 3 quality points; "C," 2 quality points. The work in any course must be completed by the final meeting of the particular class. An incomplete grade will be issued only when the work is interrupted due to a health condition. Under such a condition the "I" grade must be removed within sixty days following the end of the session.

Permanent Certification Requirements

By action of the State Council of Education, all college certificates issued after October 1, 1959 require the completion of at least twelve hours of post-baccalaureate work for permanent certification. Provisional certificates issued after October 1, 1963 require twenty-four semester hours for permanent certification. Of the twenty-four hours at least twelve must be in the field of certification.

All teachers who are able to qualify for admission to a graduate program and who are able to profit by graduate work should be encouraged to do the work required for Permanent Certification in a Graduate Program in order that it may also be used toward a Master's degree.

When to Apply for Admission

Application forms for admission may be obtained from the Graduate Office. Applicants are urged to complete the necessary steps for admission as soon as possible. (Check calendar on pages 3 and 4 for deadline dates.) Write to Dean of the Graduate School, State College, Indiana, Pennsylvania.

Scholarships

The Board of Trustees of the Indiana State College has authorized the college Loan and Scholarship Committee to award some scholarship aid to meritorious graduate students. The following suggestions have been presented by the Loan and Scholarship Committee:

1. One \$50.00 scholarship be awarded each semester to that graduate student who best merits the award.
2. Three members of the Graduate Council serve as a committee to recommend the recipient to the Loan and Scholarship Committee.
3. Nominations for the award be made to the committee by the Dean of the Graduate School.
4. To be eligible for nomination the student must have completed twelve semester hours of graduate work at Indiana and be an approved candidate for the Master of Education degree at Indiana.

Kappa Delta Pi Graduate Scholarship

The Kappa Delta Pi Graduate Scholarship was established by Beta Gamma Chapter of this college to honor that member of the graduate group who is judged the ideal student. This award of twenty-five dollars is made each year by a committee of the local chapter and is awarded on the basis of scholarship and research competition.

Student Aid

Indiana is able to offer limited assistance in student aid through employment for those Graduate Students pursuing study on a full-time basis. For further information, contact the chairman of the department involved or the Dean of the Graduate School.

Counselorships for Men

Appointments are available to men graduate students to serve as Hall Counselors and House Heads in undergraduate dormitories on and off campus. Background or training in counseling or personnel work is desirable though not essential. These appointments are made for each semester, and are usually renewable for the second semester. They provide the recipient with room and, in some instances, with an advance toward board. Requests for information and applications should be addressed to the Dean of Men. Completed application forms should be submitted to his office by April 1 for openings in the Fall.

Counselorships for Women

Several appointments are available to women graduate students to serve as counselors in residence halls. Counselors receive \$30.00 per month in return for working with under-graduates in the areas of social, academic, and emotional adjustment. Applications should be submitted to the office of the Dean of Women by March 25.

Undergraduate Summer Program

Indiana State College maintains a comprehensive program of undergraduate instruction throughout the summer. Detailed information on the undergraduate program may be obtained by writing to the Dean of Academic Affairs for the Summer School Bulletin.

Veterans

Indiana is approved to offer training under the Korean G.I. Bill (Public Law 550) and Public Law 894 (disabled Korean veterans). Students who are entitled to training under one of these bills should contact the Veterans' Counselor immediately after being accepted for admission to Indiana in order to secure additional instructions. This procedure is necessary so veterans may be included on the monthly payrolls. The Office of the Veterans' Counselor is in Room 101, Whitmyre Hall.

Auditors

Students not eligible to enroll for credit may enroll as auditors. Course fees are the same as for those enrolled for credit. Anyone qualified for admission is expected to apply formally for admission before requesting permission to enroll in any graduate class.

Housing Facilities

Room reservations for women can be made by writing to the Dean of Women. An advance registration deposit will not be required to reserve a room for summer sessions.

Students are not expected to room alone. Therefore, prospective students are urged to apply in pairs. In this way each student is assured a congenial roommate. Single applications are handled to the best possible advantage, but the college prefers that students make their own choices whenever possible. Applications for rooms are filed in the order in which they are received. Students are requested to write to the Dean of Women if there is any preference in rooms, and to indicate whether a room with or without water is desired. The college will give preferences to those whose reservation deposit has been paid in advance.

Men in the Indiana Graduate School who desire housing facilities for the summer should write for information and reservations to the Dean of Men. All housing arrangements should be cared for as early as possible.

The housing fee, which includes room, board, and laundry, is \$17.00 per week.

Transfer of Credit

Resident (on main campus) graduate work of high quality done in a recognized graduate school elsewhere and coming within the five-year time limit may be accepted to the extent of 6 semester hours. Such credits will be transferred to the Graduate School at Indiana only after the student has applied for admission to candidacy for the degree, and then only if the chairman of the department concerned, after conference with the student, recommends to the Dean for his approval the transfer of such credits as coordinate with the student's program in his chosen field. Work already applied toward another degree cannot be accepted; nor extension work completed at another institution. The final six hours in any program must be completed at Indiana.

Fees

(Subject to change without notice)

Tuition Fee.....\$20.00 per semester hour
Tuition Fee for Music Education Students will be \$25.00 per semester hour for all courses except private instruction which will be charged at the rate of \$32.00 per semester hour and private organ at \$42.00 per semester hour.

Graduation Fee\$5.00

Activity Fee (charged in summer session only). The activity fee for the regular summer session is \$7.00, and \$2.50 each for the pre- and post-session.

Late Registration Fee.....\$1.00 per credit per day will be assessed a student who fails to complete registration, including payment of fees, on the dates and within the hours specified in the published procedure for registration for any particular semester or term.

Master's Cap, Hood and Gown Fee....Candidates who have been accepted by the Graduate School for the Master's degree are required to purchase or rent from the college bookstore a Master's cap, hood, and gown to be worn at the graduation exercises. The fee for these items is nominal.

Thesis or Research Project Binding Expense.....The binding of the required copies of the thesis or the research project is an expense which must be cared for by each graduate candidate. The current charge for binding a thesis is \$4.50 per copy and for binding a research project, \$1.00 per copy.

Transcripts of Graduate Work

Transcripts of one's graduate work may be obtained by contacting the registrar's office. The fee for this service is \$1.00 per transcript.

Refunds

There will be no tuition refunds except in cases of prolonged illness. A request for such a refund must be accompanied by a medical certificate indicating prolonged illness and inability to work or attend classes. Half of the tuition fee will be refunded if the request is made prior to the completion of one-third of the scheduled class periods. No refund will be made after one-third of the class meetings.

Withdrawals from Classes

If a student decides to withdraw from a course before the middle of any semester or session, he may do so by notifying the Graduate Office in writing of his intent to withdraw. In this case a grade of W may be entered on the permanent record. A student withdrawing from a course after the middle of a semester or session will automatically receive an F. If withdrawal is caused by a health condition or for another approved reason, the grade may be indicated as incomplete and made up in accordance with an agreement between the instructor, student, and Dean of the Graduate School.

Programming and Registration

The responsibility for being properly programmed and registered rests with the student. For each session the student, following the curriculum in this publication under his particular major field, prepares a schedule of courses to fit his individual needs. Normally he schedules content courses in his major as rapidly as they are available. The schedule is submitted to the Dean of the Graduate School for his approval. The student is responsible for following the specified procedure.

Academic Load

Many graduate students depend upon part-time or full-time employment to meet their expenses. A student who is thus employed must recognize the time demands of his work schedule in planning his graduate program. The Graduate School assumes that its facilities should be made available only to students who can benefit from graduate study to a maximum extent.

Curriculum for Master of Education Degree

"The education of a teacher needs to be seen as a whole, for it is the final product which is important rather than the content of any one stage. The aim of the process is to produce men and women whose intellectual and cultural backgrounds are broad and deep, who know the material they are to teach and who can present it skillfully. The balance among the three factors in the objectives of a particular graduate student's program will vary with the candidate's previous background and to some extent in view of the age group and subjects he will teach, but none of the three may be neglected."¹

In each of the several programs leading to the master's degree at Indiana, the student takes work in several categories. The emphasis is placed upon excellence in scholarship and depth in a discipline. The standards set forth in the curriculum listed elsewhere in this bulletin provide facilities to meet the individual needs of the student.

Every student must complete the course entitled Elements of Research. Research is important to the graduate student in any of the Indiana programs. This research feature should enable the student to acquire the techniques of research as well as to be able to interpret and comprehend current research as it is applied in the student's field.

Objectives and Philosophy of the Graduate School

The primary purposes of the graduate programs at Indiana are: To encourage excellence in scholarship, to provide for depth in the

¹ Document 4.72, Middle States Association of College and Secondary Schools, Commission on Institutions of Higher Education.

student's special field, and to stimulate enthusiasm for continued cultural and professional growth.

Student Responsibility

The graduate student is expected to know the requirements for the degree he plans to earn. While the officers and teachers of the Graduate School will endeavor to aid in any way possible, the responsibility for any error in his own enrollment or in the interpretation of the requirements rests with the student.

Graduate Study in Reading

Elementary teachers interested in reading may apply six (6) semester hours of work in the area of professional studies in the Elementary Program. Junior and Senior High School teachers majoring in English may apply six (6) semester hours of work in the professional studies area in the English program. Reading will be written on the certificate valid for English when an applicant has completed a minimum of six (6) semester hours in developmental and remedial reading.

Normally a student will follow this sequence:

Elementary teachers will take Ed 533 as the initial course and then follow with Ed 534-535.

Secondary teachers will start with Ed 531 and follow with Ed 534-535.

REGULATIONS FOR PRINCIPAL'S CERTIFICATES IN PENNSYLVANIA

On October 1, 1964, new regulations for the issuance of principal's certificates became effective. The new regulations for the provisional elementary or secondary principal's certificate are substantially as follows: An applicant shall: (1) Hold a Pennsylvania College Certificate. (2) Have three years of successful experience. (3) Complete 45 semester hours of graduate study, including a Master's degree with the following minimum requirements: (a) 12 semester hours in an academic field other than psychology; (b) graduate study in developmental and remedial reading; (c) 15 semester hours distributed among administrative processes, curriculum and instructional processes, and the history and role of the school in society; and (d) documentary evidence of proficiency in English. The College Certificate and experience must be at the level (elementary or secondary) for which administrative certification is requested.

**The Cooperative Administration of the Regulations by
Indiana State College and The Pennsylvania State University**

An applicant for a Provisional Elementary or Secondary Principal's certificate must be endorsed by an institution with an ap-

proved program in administration. Indiana does not provide a program in administration but has a cooperative arrangement with The Pennsylvania State University whereby a student interested in this certification may secure the endorsement of the approved institution by the following plan.

1. If a candidate for one of these certificates completes graduate work at Indiana for a Master of Education Degree in Elementary Education or in an academic field, he may complete the post master's-work (at least 15 hours) at The Pennsylvania State University.

2. When the student applies for admission to candidacy for the M.Ed. at Indiana, he should indicate his intention to seek principalship certification. The Dean of the Indiana Graduate School will review the candidate's qualifications and may recommend the candidate to The Pennsylvania State University.

3. The Pennsylvania State University decides how much of the graduate work completed at Indiana may be counted towards the 45 hours needed for certification endorsement. Part or all of the minimum 30 hours earned for the M.Ed. at Indiana may be acceptable. The student should plan to schedule reading courses and courses in measurement and statistics as electives in his program at Indiana.

4. The completion of the research requirement at Indiana may be accepted as documentary evidence of proficiency in English.

5. After completion of his graduate program at Indiana, the student should seek admission to the Graduate School of The Pennsylvania State University indicating his interest in principalship certification. For application forms and information write to: The Assistant Dean for Admissions, The Graduate School, The Pennsylvania State University, University Park, Pennsylvania.

6. The provisional certificate based on the 45 hours is valid for serving as a Principal for five years. To make this provisional certificate permanent, 15 additional approved graduate hours are required and may be completed at The Pennsylvania State University or other institutions with an approved administration program.

CERTIFICATION IN COUNSELOR EDUCATION

Subject to approval by the State Board of Education and the Department of Public Instruction those students who initiate a master's program with a major in counselor education will be recommended by Indiana State College for provisional certification as a counselor when they have met the following requirements:

- A. Two years of successful teaching or professional counseling experience.
- B. Completion of twenty-eight semester hours of graduate work in Counselor Education and related subjects as outlined in the course of study.

A student who presents proof of competency in one or more of the courses included in the revised program may, with the approval of his advisor and the department chairman, elect in its place a non-required course chosen either from the counselor education curriculum or from other approved areas. Students seeking certification in Counselor Education must secure the approval of the Department of Education and Psychology and the Dean of the Graduate School.

Recommendation by Indiana State College for permanent certification will require completion of the Master's Degree with a major in Counselor Education and also three years of experience, with the candidate serving at least one-half time as a counselor.

Scope of Certificate in Counselor Education

This Certificate permits the holder to serve as a counselor in all the grades of the public schools.

Advanced Graduate Study Beyond Master's Degree

Students may find that more courses are offered that would be of benefit to them than they are able to include in their Master's degree program. These students are encouraged to continue their training after receiving their Master's degree and this additional training will be recognized by many school districts for salary purposes and by the Bureau of Teacher Certification for certification purposes. Students are advised, however, that most graduate schools have their own residence requirements and will probably not accept more than 30 credit hours (or Master's equivalent) of graduate credit earned at Indiana toward the Doctor's degree at their institution.

Appropriate certificates may be awarded to the student who completes an additional 15 or 30 credit hours beyond the Master's degree. For purposes of this certificate these credits must be apportioned in a manner approved by the Dean of the Graduate School.

Internship in Elementary Education

For a limited number of Elementary Education graduates Indiana State College is providing an internship program leading to the Master of Education degree.

The participant must first complete a Bachelor's degree in Elementary Education and hold a teaching certificate. He will first enroll for a full summer of graduate study. During the following academic year he will spend one semester as a full-time professional teacher in a selected school system; during the other semester he will be a full-time graduate student on the Indiana campus. The second summer will be spent in completing the Master of Education requirements.

While the teacher is employed as a full-time professional teacher in a selected school system, he will have individual consultations on his professional work progress with a specialist from the college in which there will be intensive and constant review of his work as a teacher. The (intern) teacher will be paid by the school district for one-half year at the usual rate for a professional teacher in that position.

The course work taken during the two summer sessions and the one full semester will be carefully selected to provide the maximum professional and personal benefit. This course work will meet the requirements for the Master of Education degree in elementary education and will fulfill permanent certification requirements.

Under internship conditions which entail close conferences and follow-up study by an elementary education specialist from Indiana State College, the teacher will, in effect, be earning a full half-year's salary as a professional teacher while completing work for his Master's degree.

For information regarding the fifth-year internship program for the Master's degree in elementary education, interested persons should write to Dr. P. D. Lott, Chairman of the Elementary Education Department, State College, Indiana, Pennsylvania.

CONTEMPORARY EUROPE, 1966

Indiana State College will sponsor a seven-week study-tour of nine European countries during the period June 28-August 16, 1966. This course, which will carry six hours of graduate credit, will emphasize the economic, social, political, and military organization of the continent based on the historical development of the region. Cost of the tour has been fixed at \$1,250, plus tuition payments. Interested students are invited to write to:

Contemporary Europe, 1966
Social Science Department
State College
Indiana, Pennsylvania

CURRICULUMS FOR THE MASTER OF EDUCATION DEGREE

ART

Curriculum for Master of Education Degree

Students working for this degree with a major in Art will complete the thirty (30) semester hours of work using the following outline as a guide:

- I. General Studies—Select four to six (4-6) semester hours from at least 2 areas. Other choices may be made with the approval of the adviser.

Bus	570	Economic Backgrounds of Business	2 s.h.
Eng	521	Modern European Fiction	2 s.h.
Eng	540	Twentieth Century American Drama	2 s.h.
Eng	535	Criticism	2 s.h.
Eng	531A	or B Major Writers	2 s.h.
Eng	523	The Development of Modern English	2 s.h.
Eng	536	Studies in Middle English and Renaissance Literature	2 s.h.
Eng	537	Modern American Fiction	2 s.h.
FL	521	Language and Society	2 s.h.
Math	521	Basic Concepts in Mathematics	2 s.h.
Mus	521	Music Literature and Materials	2 s.h.
SS	521	Contemporary American Issues	2 s.h.
SS	561	Social Policy Studies	2 s.h.

- II. Subject Matter Concentration Area (14 to 22 s.h.)

A. Professional Studies (4 to 12 s.h.)

1. At least eight (8) semester hours in this section required for students seeking a Supervisor of Art certificate; otherwise, elect four (4) semester hours.

Art	510	Art and the Exceptional Child	2 s.h.
Art	511	Curriculum Development, Supervision, and Administration in Art	2 s.h.
Art	513	Research and Philosophy in Art Education (Prerequisite: Ed 515)	2 s.h.
Ed	550	Thesis	2-4 s.h.
Psy	531	Psychology of the Exceptional Child	2 s.h.

B. Fine and Applied Arts and Crafts (6 to 18 s.h.)

1. The Basis of Art in Culture (Elect 2 to 6 s.h.)

Art	522	Art in America	2 s.h.
Art	523	Seminar in Art Criticism	2 s.h.
Art	524	Art of the East	2 s.h.
Art	525	Architectural Influences in Contemporary Society	2 s.h.
Art	526	Exotic Art and Art of Latin America	2 s.h.
Art	527	Renaissance Art	2 s.h.
Art	528	World Art Since 1875	2 s.h.

2. Design (Elect 2 to 6 s.h.) Three clock hours are required to earn two semester hours. The student may elect three different courses or three courses in one field as indicated by Roman Numerals—for example, Graduate Studio in Ceramics I, II and III.

Art	540-541-542	Graduate Studio in Ceramics I, II, III	2-6 s.h.
Art	543	Exhibition Techniques	2 s.h.
Art	544-545-546	Graduate Studio in Fabrics I, II, III	2-6 s.h.
Art	547-548-549	Graduate Studio in Jewelry and Metal Work I, II, III	2-6 s.h.
Art	550-551-552	Graduate Studio in Sculpture I, II, III	2-6 s.h.

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|-----|-------------|---|--------|
| Art | 553-554-555 | Graduate Studio in Crafts I, II, III. | 2 s.h. |
| Art | 556 | Graduate Studio in Theater Arts or
Dramatic Arts | 2 s.h. |
3. Graphic Design (Elect 2 to 6 s.h.) Three clock hours are required to earn two semester hours. The student may elect three different courses or three courses in one field as indicated by Roman Numerals.
- | | | | |
|-----|-------------|---|----------|
| Art | 561 | Graduate Studio in Drawing. | 2 s.h. |
| Art | 562-563-564 | Graduate Studio in Oil Painting I, II, III. . | 2-6 s.h. |
| Art | 565-566-567 | Graduate Studio in Water Color Painting
I, II, III | 2-6 s.h. |
| Art | 568-569-570 | Graduate Studio in Print Making I, II, III. . | 2-6 s.h. |
| Art | 571 | Graduate Studio in Mural Painting. | 2 s.h. |
- III. Foundations of Education—select two (2) semester hours
- | | | | |
|----|-----|--|--------|
| Ed | 511 | Historical Foundations of Education. | 2 s.h. |
| Ed | 512 | Philosophical Foundations of Education. | 2 s.h. |
| Ed | 513 | Social Foundations of Education. | 2 s.h. |
- IV. Research Techniques—two (2) semester hours are required. This course should be completed early in the student's program.
- | | | | |
|----|-----|----------------------------|--------|
| Ed | 515 | Elements in Research | 2 s.h. |
|----|-----|----------------------------|--------|

BUSINESS

Curriculum for Master of Education Degree

- I. General Studies—four to six (4-6) semester hours of work to be selected from the following:
- | | | | |
|------|-----|---|--------|
| Art | 521 | Contemporary Movements in Art. | 2 s.h. |
| Eng | 521 | Modern European Fiction | 2 s.h. |
| Eng | 523 | The Development of Modern English. | 2 s.h. |
| Geog | 521 | Advanced Human Geography | 2 s.h. |
| Math | 521 | Basic Concepts in Mathematics. | 2 s.h. |
| SS | 521 | Contemporary American Issues | 2 s.h. |
- II. Subject Matter Concentration Area—fourteen to sixteen (14-16) semester hours work in subject matter content to be selected from the following: A minimum of two areas are to be chosen.
- A. Accounting—Prerequisite of twelve hours in Accounting
- | | | | |
|-----|-----|------------------------------------|--------|
| Bus | 500 | Accounting Systems | 2 s.h. |
| Bus | 501 | Principles of Tax Accounting. | 2 s.h. |
| Bus | 502 | Advanced Tax Accounting | 2 s.h. |
| Bus | 503 | Financial Statement Analysis | 2 s.h. |
| Bus | 504 | Budgeting and Cost Analysis | 2 s.h. |
- B. Secretarial—Prerequisite of nine hours in Shorthand
- | | | | |
|-----|-----|--|--------|
| Bus | 510 | Business Communications and Report Writing. | 2 s.h. |
| Bus | 511 | Advanced Shorthand for Teachers. | 2 s.h. |
| Bus | 512 | Office Organization and Management. | 2 s.h. |
- C. Retailing—Prerequisite of six hours in Retailing
- | | | | |
|-----|-----|--|--------|
| Bus | 520 | Retail Organization and Management. | 2 s.h. |
| Bus | 521 | Principles of Marketing. | 2 s.h. |
- D. Basic Business
- | | | | |
|-----|-----|--|--------|
| Bus | 530 | Money and Banking | 2 s.h. |
| Bus | 531 | Principles of Investment in Securities. | 2 s.h. |
| Bus | 532 | Current Business Economic Problems. | 2 s.h. |
| Bus | 533 | Case Problems in Business Law. | 2 s.h. |
| Bus | 534 | Consumer Economic Problems. | 2 s.h. |
| Bus | 536 | Automated Data Processing | 4 s.h. |
| Bus | 540 | Office or Retail Work Experience. | 4 s.h. |

III. Professional Studies—six to ten (6–10) semester hours including a research project.

A. General Area

Bus	550	Principles and Problems of Business Education.....	2 s.h.
Bus	551	Administration and Supervision of Business Education.....	2 s.h.
Bus	552	Seminar in Business Education.....	2 s.h.
Ed	516	Statistical Methods in Education I.....	2 s.h.
Ed	550	Thesis	2 to 4 s.h.

B. Instructional Area—a minimum of two semester hours

Bus	560	Improvement of Instruction in Secretarial Courses... ..	2 s.h.
Bus	561	Improvement of Instruction in Basic Business Courses	2 s.h.
Bus	562	Improvement of Instruction in Bookkeeping and Business Arithmetic	2 s.h.

IV. Foundations of Education—two (2) semester hours of work selected from:

Ed	511	Historical Foundations of Education.....	2 s.h.
Ed	512	Philosophical Foundations of Education.....	2 s.h.
Ed	513	Social Foundations of Education	2 s.h.

V. Research Techniques—the following course is required. It should be scheduled early in the student's program:

Ed	515	Elements of Research	2 s.h.
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COUNSELOR EDUCATION

Curriculum for Master of Education Degree

Students working for this degree will complete a minimum of thirty (30) semester hours of work as outlined within the following divisions: (Strict adherence to course sequence is of vital importance in this program.)

Area I

Ed	511	Historical Foundations of Education	
Ed	512	Philosophical Foundations of Education	
Ed	513	Social Foundations of Education	
		Select one of the above.....	02 s.h.
Ed	516	Statistical Methods in Education I.....	02 s.h.
Psy	530	Psychology of Growth and Development.....	02 s.h.
CnEd	531	Philosophy and Principles of Guidance.....	02 s.h.
Psy	531	Psychology of the Exceptional Child.....	2 s.h.
Psy	533	Psychology of Personality.....	2 s.h.
Psy	534	Abnormal Psychology	2 s.h.
Psy	535	Differential Psychology	2 s.h.
Psy	536	Psychology of Learning	2 s.h.

EVALUATION: Students must satisfy departmental requirements, including the Graduate Record Examination, before continuing in Area II. To avoid unnecessary delay these examinations should be anticipated and cleared with your advisor before completion of required courses in Area I.

Area II

CnEd	533	Evaluative Methods in Guidance I.....	02 s.h.
CnEd	534	Evaluative Methods in Guidance II.....	02 s.h.
CnEd	535	Study of the Individual (Case Studies).....	02 s.h.
CnEd	536	The Information Service in Guidance.....	02 s.h.
CnEd	537	Interview Techniques in Counseling.....	02 s.h.
CnEd	539	Group Procedures in Guidance.....	02 s.h.
Ed	515	Elements of Research	02 s.h.
CnEd	525	Guidance Services in the Elementary School.....	2 s.h.
CnEd	538	Organization and Administration of Guidance Services	02 s.h.
Psy	532	Studies in Pupil Adjustment.....	2 s.h.
Psy	538	Psychology of the Gifted Child.....	2 s.h.

Psy	539	Psychology of the Mentally Retarded Child.....	2 s.h.
Psy	540	Advanced Mental Hygiene	2 s.h.

EVALUATION: Competency Tests over required courses in Area II upon recommendation of the staff.

Area III

CnEd	541	Supervised Experience in Counseling.....	*4 s.h.
CnEd	542	Seminar: Organization and Dissemination of Educational Information	1 s.h.
CnEd	543	Seminar: Utilization of Community and Educational Resources	1 s.h.
CnEd	544	Seminar: Curriculum Utilization	1 s.h.
CnEd	545	Seminar: Field Problems	1 s.h.

THE POST-MASTER'S PROGRAM

Area IV

Prerequisite: Master's Degree in Counselor Education from Indiana State College or other accredited institution.

Ed	517	Statistical Methods in Education II.....	2 s.h.
Psy	541	Individual Psychometric Techniques: Binet Scales..	2 s.h.
Psy	542	Individual Psychometric Techniques: Wechsler Scales	2 s.h.
Psy	543	Introduction to Projective Techniques.....	2 s.h.
Psy	544	Advanced Learning Theories	2 s.h.
CnEd	550	Practicum in the Supervision of Guidance Workers..	2 s.h.

ELEMENTARY EDUCATION

Curriculum for Master of Education Degree

Students working for this degree in Elementary Education will complete the thirty (30) semester hours of work in accordance with the following divisions:

I. General Studies—fourteen to eighteen (14–18) semester hours of work in General Studies to be selected from the following courses:

Art	521	Contemporary Movements in Art.....	2 s.h.
Bus	570	Economic Backgrounds of Business.....	2 s.h.
Ed	522	Principles and Practices in Speech Improvement...	2 s.h.
Eng	521	Modern European Fiction	2 s.h.
Eng	523	The Development of Modern English.....	2 s.h.
Eng	525	The Early English Drama.....	2 s.h.
Eng	557	Modern American Poetry	2 s.h.
FL	521	Language and Society	2 s.h.
Geog	521	Advanced Human Geography	2 s.h.
HE	521	Problems in Family Living.....	2 s.h.
HPE	521	Advanced Seminar in Health and Safety.....	2 s.h.
HPE	530	Workshop in Community-School Health Education..	2 s.h.
Math	521	Basic Concepts in Mathematics.....	2 s.h.
Mus	521	Music Literature and Materials.....	2 s.h.
SS	521	Contemporary American Issues	2 s.h.
SS	561	Social Policy Studies	2 s.h.

II. Professional Studies—eight to ten (8–10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:

Ed	516	Statistical Methods in Education I.....	2 s.h.
Ed	518	Seminar in Sensory and Audio-Visual Materials....	2 s.h.
Ed	534–		
	535	Diagnosis and Remediation in Reading-Theory and Clinical Practice	each 2 s.h.

* Required.

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|-----|-----|---|--------|------|
| Ed | 530 | Thesis | 2 to 4 | s.h. |
| El | 531 | Curriculum Problems in Elementary Education..... | 2 | s.h. |
| El | 533 | Reading Disabilities of Elementary School Children..... | 2 | s.h. |
| El | 541 | Special Problems in Elementary Social Studies..... | 2 | s.h. |
| El | 542 | Arithmetic in the Elementary School..... | 2 | s.h. |
| El | 543 | Resource Materials in Elementary Science..... | 2 | s.h. |
| El | 544 | Recent Trends in Elementary Language Arts..... | 2 | s.h. |
| El | 545 | Experimental Studies in Art Education..... | 2 | s.h. |
| El | 546 | Modern Procedures and Skills in Elementary Music..... | 2 | s.h. |
| El | 547 | Resource Materials in Children's Literature..... | 2 | s.h. |
| Psy | 531 | Psychology of the Exceptional Child..... | 2 | s.h. |
| Psy | 532 | Studies in Pupil Adjustment..... | 2 | s.h. |
| Psy | 540 | Advanced Mental Hygiene | 2 | s.h. |
- III. Foundations of Education—two (2) semester hours of work to be selected from the following courses:
- | | | | | |
|----|-----|---|---|------|
| Ed | 511 | Historical Foundations of Education..... | 2 | s.h. |
| Ed | 512 | Philosophical Foundations of Education..... | 2 | s.h. |
| Ed | 513 | Social Foundations of Education..... | 2 | s.h. |
- IV. Research Techniques—the following course is required. It should be scheduled early in the student's program:
- | | | | | |
|----|-----|----------------------------|---|------|
| Ed | 515 | Elements of Research | 2 | s.h. |
|----|-----|----------------------------|---|------|

ENGLISH

Curriculum for Master of Education Degree

Students working for this degree with a major in English will complete the thirty (30) semester hours of work in accordance with the following division:

- I. Subject Matter Concentration Area—sixteen to twenty-four (16-24) semester hours of work in subject matter content are to be selected from the following courses:

Eng	510	Bibliographical Methods in English.....	2	s.h.
		(Required of all English majors after completing Ed 515, Elements of Research.)		
Eng	512	American English Grammar	2	s.h.
Eng	521	Modern European Fiction	2	s.h.
Eng	522	Chaucer	2	s.h.
Eng	523	The Development of Modern English.....	2	s.h.
Eng	525	The Early English Drama.....	2	s.h.
Eng	526	Shakespeare and His Contemporaries.....	2	s.h.
Eng	527	Restoration and Eighteenth Century Drama.....	2	s.h.
Eng	528	Milton	2	s.h.
Eng	529	The Romantic Poets	2	s.h.
Eng	530	Tennyson and Browning	2	s.h.
Eng	531A	Major Writers: (Emerson, Thoreau, and Hawthorne)	2	s.h.
Eng	531B	Major Writers: (Faulkner and Hemingway).....	2	s.h.
Eng	531C	Major Writers: (Hardy)	2	s.h.
Eng	531D	Major Writers: (Whitman and Twain).....	2	s.h.
Eng	531E	Major Writers: (Poe and Melville).....	2	s.h.
Eng	531F	Major Writers: (Henry James)	2	s.h.
Eng	531G	Major Writers: (Conrad)	2	s.h.
Eng	533	British Drama since 1880.....	2	s.h.
Eng	534	Types of the Novel.....	2	s.h.
Eng	535	Criticism	2	s.h.
Eng	536	Studies in Middle English and Renaissance Literature	2	s.h.
Eng	537	Modern American Fiction	2	s.h.
Eng	538	Victorian Prose	2	s.h.
Eng	539	The Metaphysical Poets	2	s.h.
Eng	540	Twentieth Century American Drama.....	2	s.h.
Eng	541	The Rise of American Regionalism.....	2	s.h.

- | | | | |
|-----|-----|--|--------|
| Eng | 542 | Contemporary British Novelists | 2 s.h. |
| Eng | 544 | Seminar in the Psychology of Language..... | 2 s.h. |
| Eng | 545 | The Age of Pope | 2 s.h. |
| Eng | 555 | Realism in the American Novel..... | 2 s.h. |
| Eng | 556 | Modern British Poetry | 2 s.h. |
| Eng | 557 | Modern American Poetry | 2 s.h. |
| Eng | 560 | The Classics in Translation | 2 s.h. |
| Eng | 570 | Language | 2 s.h. |
| Eng | 571 | Literature | 2 s.h. |
| Eng | 572 | Composition | 2 s.h. |
| FL | 521 | Language and Society | 2 s.h. |
- II. Professional Studies—two to eight (2–8) semester hours of work, including Research Project or the Thesis, to be selected from the following:
- | | | | |
|-----|-------------|--|--------|
| Eng | 511 | Seminar in the Teaching of English in the
Secondary School | 2 s.h. |
| Eng | 550 | Workshop in Play Production..... | 6 s.h. |
| Ed | 516 | Statistical Methods in Education I..... | 2 s.h. |
| Ed | 518 | Seminar in Sensory and Audio-Visual Materials..... | 2 s.h. |
| Ed | 531 | Reading Problems of Junior and Senior
High School Students | 2 s.h. |
| Ed | 534–
535 | Diagnosis and Remediation in Reading-Theory
and Clinical Practice | 2 s.h. |
| Ed | 550 | Thesis | 2 s.h. |
| Psy | 531 | Psychology of the Exceptional Child | 2 s.h. |
| Psy | 532 | Studies in Pupil Adjustment | 2 s.h. |
- III. Foundations of Education—two (2) semester hours of work to be selected from the following courses:
- | | | | |
|----|-----|---|--------|
| Ed | 511 | Historical Foundations of Education | 2 s.h. |
| Ed | 512 | Philosophical Foundations of Education..... | 2 s.h. |
| Ed | 513 | Social Foundations of Education..... | 2 s.h. |
- IV. Research Techniques—the following course is required. It should be scheduled early in the student's program:
- | | | | |
|----|-----|----------------------------|--------|
| Ed | 515 | Elements of Research | 2 s.h. |
|----|-----|----------------------------|--------|

GEOGRAPHY

Curriculum for Master of Education Degree

Students working for this degree with a major in Geography will complete the thirty (30) semester hours of work in accordance with the following divisions:

- I. Subject Matter Concentration Area—fourteen to twenty-two (14–22) semester hours of work in subject matter content are to be selected from the following courses: 14 semester hours in Geography (minimum), 8 additional hours in Geography and/or related or applied courses to be approved by the department.

Geography content courses:

Geog	521	Advanced Human Geography	2 s.h.
Geog	522	Political Geography	2 s.h.
Geog	523	Urban Geography	2 s.h.
Geog	524	Cultural Geography	2 s.h.
Geog	525– 540	Seminars in Regional Geography (See course description)	each 2 s.h.
Geog	541	Agricultural Geography	2 s.h.
Geog	542	Industrial Geography	2 s.h.
Geog	550	A-B Geographic Readings	2 or 4 s.h.
Geog	552	Seminar in World Resources	2 s.h.

Geog	554	Physiography of the United States.....	2 s.h.
Geog	565	Aerospace Workshop	2 s.h.

Courses above 549 are not recommended for other than geography, social science, or science majors.

- II. Profession Studies—four to ten (4–10) semester hours of work, including Research Paper or the Thesis to be selected from the following, with two (2) semester hours of Geog. 564 required.

Ed	516	Statistical Methods in Education I.....	2 s.h.
Ed	518	Seminar in Sensory and Audio-Visual Materials.....	2 s.h.
Ed	550	Thesis	2 or 4 s.h.
Psy	531	Psychology of the Exceptional Child.....	2 s.h.
Psy	532	Studies in Pupil Adjustment	2 s.h.
Geog	551	Professional Problems in Geographic Education.....	2 s.h.
Geog	555	Cartography for Thesis Writing.....	2 s.h.
Geog	556	Map and Photographic Interpretation.....	2 s.h.
Geog	557	Geographic Research	2 s.h.
Geog	563	Field Techniques in Geography	2 s.h.
Geog	564	Regional Field Studies (required).....	2 to 6 s.h.

- III. Foundations of Education—two (2) semester hours of work to be selected from the following courses:

Ed	511	Historical Foundations of Education.....	2 s.h.
Ed	512	Philosophical Foundations of Education.....	2 s.h.
Ed	513	Social Foundations of Education.....	2 s.h.

- IV. Research Techniques—the following course is required:

Ed	515	Elements of Research	2 s.h.
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MATHEMATICS

Curriculum for Master of Education Degree

At the time of admission to the Graduate School, it is the responsibility of the student to secure a Faculty Adviser as outlined under the heading, "The Advisory System" on page — of this Bulletin. No scheduling of courses should be done before consultation with this adviser either in person or by mail.

Students working for this degree with a major in Mathematics will complete the thirty (30) semester hours of work in accordance with the following divisions:

- I. Subject Matter Concentration Area—fourteen to twenty-two (14–22) semester hours of work in subject matter content are to be selected from the following courses in which the student must take at least one two-semester sequence from each of "Analysis" (other than Math 529–530) and "Algebra"; and at least one course from each of the headings, "Geometry" and "Additional Courses."

ANALYSIS

Math	526	Fundamental Concepts of Analysis.....	2 s.h.
Math	529	Differential Equations I	2 s.h.
Math	530	Differential Equations II	2 s.h.
Math	531	Advanced Calculus I	2 s.h.
Math	532	Advanced Calculus II	2 s.h.
Math	533	Functions of a Complex Variable I.....	2 s.h.
Math	534	Functions of a Complex Variable II.....	2 s.h.
Math	535	Functions of a Real Variable I.....	2 s.h.
Math	536	Functions of a Real Variable II.....	2 s.h.
Math	539	Infinite Series I	2 s.h.
Math	540	Infinite Series II	2 s.h.
Math	543	Vector Analysis I	2 s.h.
Math	544	Vector Analysis II	2 s.h.

ALGEBRA

Math	552	Number Theory	2 s.h.
Math	560	Foundations of Algebra	2 s.h.
Math	561	Modern Algebra I	2 s.h.
Math	562	Modern Algebra II	2 s.h.
Math	563	Linear Algebra I	2 s.h.
Math	564	Linear Algebra II	2 s.h.
Math	565	Theory of Groups	2 s.h.

GEOMETRY

Math	571	Modern Geometry I	2 s.h.
Math	572	Modern Geometry II	2 s.h.
Math	575	Projective Geometry I	2 s.h.
Math	576	Projective Geometry II	2 s.h.

ADDITIONAL COURSES

Math	570	Point Set Theory	2 s.h.
Math	573	Topology	2 s.h.
Math	580	Logic	2 s.h.
Math	581	Mathematical Statistics	2 s.h.
Math	582	Theory of Probability	2 s.h.

II. Professional Studies—four to ten (4-10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:

Ed	518	Seminar in Sensory and Audio-Visual Materials.....	2 s.h.
Ed	550	Thesis	2 to 4 s.h.
Psy	531	Psychology of the Exceptional Child.....	2 s.h.
Psy	532	Studies in Pupil Adjustment.....	2 s.h.
Math	510	Seminar in Mathematics I (Jr. H. S. Mathematics) ..	2 s.h.
Math	511	Seminar in Mathematics II (Sr. H. S. Mathematics) ..	2 s.h.

III. Foundations of Education—two (2) semester hours of work to be selected from the following courses:

Ed	511	Historical Foundations of Education.....	2 s.h.
Ed	512	Philosophical Foundations of Education.....	2 s.h.
Ed	513	Social Foundations of Education.....	2 s.h.

IV. Research Techniques—the following course is required. It should be scheduled early in the student's program:

Ed	515	Elements of Research	2 s.h.
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V. Elective Courses—Cannot count in minimum requirements of concentration area but may count toward degree.

Math	501	Digital Computer Programming (FORTRAN).....	2 s.h.
Math	502	Digital Computers and Compiler Systems.....	2 s.h.
Math	503	Seminar: Computer Applications in Research.....	2 s.h.

MUSIC

Curriculum for Master of Education Degree

Students working for this degree with a major in Music Education will complete the thirty (30) semester hours of work in accordance with the following divisions:

I. General Studies—four to six (4-6) semester hours of work to be selected from the following courses: (This is a partial listing)

Art	521	Contemporary Movements in Art.....	2 s.h.
Eng	521	Modern European Fiction	2 s.h.
Eng	531A	Major Writers (Emerson, Thoreau and Hawthorne)	2 s.h.
Eng	531B	Major Writers (Faulkner and Hemingway)	2 s.h.
SS	521	Contemporary American Issues	2 s.h.
SS	561	Social Policy Studies	2 s.h.

II. Subject Matter Concentration Area—ten to twelve (10–12) semester hours of work in subject matter content are to be selected from the following courses:

o { Mus	501	Advanced Choral Conducting	2 s.h.
o { Mus	502	Advanced Instrumental Conducting	2 s.h.
o { Mus	503	Music Literature of the Baroque Era	2 s.h.
o { Mus	504	Music Literature of the 18th Century	2 s.h.
o { Mus	505	Music Literature of the Early Romantic Era	2 s.h.
o { Mus	506	Music Literature of the Late Romantic Era	2 s.h.
o { Mus	507	Music Literature Since 1900	2 s.h.
o { Mus	511	Composition	2 s.h.
o { Mus	512	Advanced Orchestration	2 s.h.
o { Mus	513	Advanced Band Scoring	2 s.h.
o { Mus	514	Advanced Choral Arranging	2 s.h.
o { Mus	515	Canon, Double Counterpoint and Fugue	2 s.h.
o { Mus	516	Form and Analysis	2 s.h.
o { Mus	530	Music Criticism	2 s.h.
o { Mus	540–591	Applied Music	4 s.h.

III. Professional Studies—ten to twelve (10–12) semester hours of work, including the Thesis or Recital, to be selected from the following:

Ed	516	Statistical Methods in Education I	2 s.h.
o Ed	550	Thesis or Recital	2 to 4 s.h.
Psy	531	Psychology of the Exceptional Child	2 s.h.
Psy	532	Studies in Pupil Adjustment	2 s.h.
o Mus	531	Administrative Problems in Music Education	2 s.h.
o Mus	532	Seminar in Music Education	2 s.h.
o { Mus	533	Comparative Choral Methods	2 s.h.
o { Mus	534	Comparative Instrumental Methods	2 s.h.
o { Mus	535	Psychology of Music Education	2 s.h.
o { Mus	536	Church Music	2 s.h.
o { Mus	537	Techniques of the Marching Band	2 s.h.

IV. Foundations of Education—two (2) semester hours of work to be selected from the following courses:

Ed	511	Historical Foundations of Education	2 s.h.
Ed	512	Philosophical Foundations of Education	2 s.h.
Ed	513	Social Foundations of Education	2 s.h.

V. Research Techniques—the following course is required. It should be scheduled early in the student's program:

Ed	515	Elements of Research	2 s.h.
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BIOLOGY

Curriculum for Master of Education Degree

Students planning to specialize in Biology must have had 24 semester hours of work in Biology and one year of Physics and one year of Chemistry. Additional courses which are recommended include Ecology, General Physiology, Genetics, and Organic Chemistry.

Students working for this degree with a major in Biology will complete 30 semester hours of work in accordance with the following divisions.

I. SUBJECT MATTER CONCENTRATION AREA—fourteen to twenty-two (14–22) semester hours of work in subject matter content is to be selected from the courses listed below. A minimum of 12 semester hours must be selected either from the Natural History area or the Anatomy

* These courses are required. Where bracketed, one course in that area is required.

and Physiology area. Students are also required to select one course from the following:

Biol	533	Biological Literature	2 s.h.
Biol	576	Radiation Biology	2 s.h.
Chem	546-		
	547	Biochemistry I, II	4 s.h.

Natural History Area

Biol	551-		
	552	Taxonomy of Plants I, II	4 s.h.
Biol	553	Principles of Animal Taxonomy	2 s.h.
Biol	555	Principles of Plant and Animal Distribution	2 s.h.
Biol	569	Ecology	2 s.h.
Geol	570	Paleontology	4 s.h.
Biol	564	Problems in Biology	2 s.h.

Anatomy and Physiology Area

Biol	541-		
	542	Comparative Anatomy I, II	4 s.h.
Biol	543-		
	544	Embryology I, II	4 s.h.
Biol	545	Microtechnique	2 s.h.
Biol	561	Plant Structure	2 s.h.
Biol	562	Animal Physiology	2 s.h.
Biol	563	Physiology of Plants	2 s.h.
Biol	566-		
	567	Cellular Physiology I, II	4 s.h.

The following courses may be elected by students in either area of concentration:

Biol	568	Demonstrations in Biology	2 s.h.
Biol	572-		
	573	Bacteriology I, II	4 s.h.
Biol	574	Genetics	2 s.h.

II. Professional Studies—four to ten (4-10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:

Ed	516	Statistical Methods in Education I	2 s.h.
Ed	518	Seminar in Sensory and Audio-Visual Materials	2 s.h.
Ed	550	Thesis	2 to 4 s.h.
Psy	531	Psychology of the Exceptional Child	2 s.h.
Psy	532	Studies in Pupil Adjustment	2 s.h.

III. Foundations of Education—two (2) semester hours of work to be selected from the following courses:

Ed	511	Historical Foundations of Education	2 s.h.
Ed	512	Philosophical Foundations of Education	2 s.h.
Ed	513	Social Foundations of Education	2 s.h.

IV. Research Techniques—the following course is required. It should be scheduled early in the student's program:

Ed	515	Elements of Research	2 s.h.
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CHEMISTRY

Curriculum for Master of Education Degree

Students planning to complete this program should have one year each of General Chemistry, Analytical Chemistry, Organic Chemistry, Physical Chemistry, General Physics as well as Mathematics through Integral Calculus.

Students working for this degree with a major in Chemistry will complete the thirty (30) semester hours of work in accordance with the following divisions:

I. Subject Matter Concentration Area—sixteen to twenty-two (16–22) semester hours of work in subject matter content as follows:

A. Required Courses:

Chem	546-547	Biochemistry I, II	4 s.h.
Chem	548-549	Physical Chemistry I, II	4 s.h.
Chem	565-566	Advanced Inorganic Chemistry I, II.....	4 s.h.
Chem	573-574	Advanced Organic Chemistry I, II.....	4 s.h.

B. Elective Courses—six (6) semester hours of work may be selected from the following courses:

Phys	531	Atomic Structure	2 s.h.
Sci	572	Experimental Techniques in Chemistry and Physics.	2 s.h.
Sci	573–		
	574	Computations in Physics and Chemistry.....	4 s.h.
Phys	569–		
	570	Electricity and Magnetism I, II.....	4 s.h.
Math	526	Fundamental Concepts of Analysis.....	2 s.h.
Math	529	Differential Equations	2 s.h.

II. Professional Studies—four to ten (4–10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:

Ed	516	Statistical Methods in Education I.....	2 s.h.
Ed	518	Seminar in Sensory and Audio-Visual Materials....	2 s.h.
Ed	550	Thesis	2 to 4 s.h.
Psy	531	Psychology of the Exceptional Child.....	2 s.h.
Psy	532	Studies in Pupil Adjustment.....	2 s.h.

III. Foundations of Education—two (2) semester hours of work to be selected from the following courses:

Ed	511	Historical Foundations of Education.....	2 s.h.
Ed	512	Philosophical Foundations of Education.....	2 s.h.
Ed	513	Social Foundations of Education.....	2 s.h.

IV. Research Techniques—the following course is required. It should be scheduled early in the student's program:

Ed	515	Elements of Research.....	2 s.h.
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PHYSICAL SCIENCE

Curriculum for Master of Education Degree

Students planning to specialize in Physical Science should have 32 semester hours of work in Chemistry and Physics and Mathematics through Integral Calculus at the undergraduate level. Additional courses in the earth sciences are desirable.

Students working for this degree with a major in Physical Science will complete the thirty (30) semester hours of work in accordance with the following divisions:

I. Subject Matter Concentration Area—fourteen to twenty-two (14–22) semester hours of work in subject matter content are to be selected from the following courses:

Phys	531	Atomic Structure	2 s.h.
Astr	534	The Solar Family	2 s.h.
Geol	535	Geomorphology	2 s.h.
Chem	548–		
	549	Physical Chemistry I, II.....	4 s.h.
Chem	565–		
	566	Advanced Inorganic Chemistry I, II.....	4 s.h.
Chem	573–		
	574	Advanced Organic Chemistry I, II.....	4 s.h.
Phys	567–		
	568	Analytical Mechanics I, II.....	4 s.h.

- | | | | |
|------|------|---|--------|
| Phys | 569- | | |
| | 570 | Electricity and Magnetism I, II..... | 4 s.h. |
| Phys | 571 | Advanced Physics Laboratory Practice..... | 2 s.h. |
| Sci | 572 | Experimental Techniques in Chemistry and Physics. | 2 s.h. |
| Sci | 573- | | |
| | 574 | Computations in Physics and Chemistry..... | 4 s.h. |
| Geol | 514 | Crystallography | 2 s.h. |
| Geol | 515 | Minerology | 2 s.h. |
- II. Professional Studies—four to ten (4-10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:
- | | | | |
|-----|-----|--|-------------|
| Ed | 516 | Statistical Methods in Education I..... | 2 s.h. |
| Ed | 518 | Seminar in Sensory and Audio-Visual Materials..... | 2 s.h. |
| Ed | 550 | Thesis | 2 to 4 s.h. |
| Psy | 531 | Psychology of the Exceptional Child..... | 2 s.h. |
| Psy | 532 | Studies in Pupil Adjustment..... | 2 s.h. |
- III. Foundations of Education—two (2) semester hours of work to be selected from the following courses:
- | | | | |
|----|-----|---|--------|
| Ed | 511 | Historical Foundations of Education..... | 2 s.h. |
| Ed | 512 | Philosophical Foundations of Education..... | 2 s.h. |
| Ed | 513 | Social Foundations of Education..... | 2 s.h. |
- IV. Research Techniques—the following course is required. It should be scheduled early in the student's program:
- | | | | |
|----|-----|---------------------------|--------|
| Ed | 515 | Elements of Research..... | 2 s.h. |
|----|-----|---------------------------|--------|

SCIENCE

Curriculum for Master of Education Degree

In order for a student to major in Science, he must have completed one year of undergraduate work in Biology, Chemistry, and Physics.

Students working for this degree with a major in Science will complete the thirty (30) semester hours of work in accordance with the following divisions:

- I. SUBJECT MATTER CONCENTRATION AREA—fourteen to twenty-two (14-22) semester hours of work in subject matter content is to be selected from the various courses in the major areas of Biology, Chemistry and Physics at the discretion of the candidate's adviser.
- II. Professional Studies—four to ten (4-10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:
- | | | | |
|-----|-----|--|-------------|
| Ed | 516 | Statistical Methods in Education I..... | 2 s.h. |
| Ed | 518 | Seminar in Sensory and Audio-Visual Materials..... | 2 s.h. |
| Ed | 550 | Thesis | 2 to 4 s.h. |
| Psy | 531 | Psychology of the Exceptional Child..... | 2 s.h. |
| Psy | 532 | Studies in Pupil Adjustment..... | 2 s.h. |
- III. Foundations of Education—two (2) semester hours of work to be selected from the following courses:
- | | | | |
|----|-----|---|--------|
| Ed | 511 | Historical Foundations of Education..... | 2 s.h. |
| Ed | 512 | Philosophical Foundations of Education..... | 2 s.h. |
| Ed | 513 | Social Foundations of Education..... | 2 s.h. |
- IV. Research Techniques—the following course is required. It should be scheduled early in the student's program:
- | | | | |
|----|-----|----------------------------|--------|
| Ed | 515 | Elements of Research | 2 s.h. |
|----|-----|----------------------------|--------|

ELEMENTARY SCIENCE

Curriculum for Master of Education Degree

This program does not lead to certification in science at the secondary level. It is designed to provide the elementary teacher with an opportunity to increase his ability to teach science at the elementary level. Students working for this degree with a major in Elementary Science will complete the thirty (30) semester hours of work in accordance with the following divisions:

- I. Subject Matter Concentration Area—fourteen to twenty-two semester hours of work in subject matter content are to be selected from the following courses, except that a more advanced course may be required by the adviser if the background of the student warrants.

ElSc	580	Chemistry I	2	s.h.
ElSc	581	Chemistry II	2	s.h.
ElSc	583	Physics I	2	s.h.
ElSc	584	Physics II	2	s.h.
ElSc	586	Botany	2	s.h.
ElSc	587	Zoology	2	s.h.
ElSc	588	Field Biology	4	s.h.
ElSc	589	Geology	2	s.h.
ElSc	590	Meteorology	2	s.h.
ElSc	591	Astronomy	2	s.h.
Math	521	Basic Concepts in Mathematics.....	2	s.h.
- II. Professional Studies—four to ten (4-10) semester hours of work including research paper or the thesis to be selected from the following:

Ed	516	Statistical Methods in Education I.....	2	s.h.
Ed	518	Seminar in Sensory and Audio-Visual Materials.....	2	s.h.
Ed	550	Thesis	2 to 4	s.h.
El	531	Curriculum Problems in Elementary Education.....	2	s.h.
El	533	Reading Disabilities of Elementary School Children.....	2	s.h.
El	542	Arithmetic in Elementary School.....	2	s.h.
El	543	Resource Materials in Elementary Science.....	2	s.h.
El	544	Recent Trends in Elementary Language Arts.....	2	s.h.
Psy	531	Psychology of the Exceptional Child.....	2	s.h.
Psy	532	Studies in Pupil Adjustment.....	2	s.h.
ElSc	592	Elementary Science Curriculum	2	s.h.
- III. Foundations of Education—two (2) semester hours of work to be selected from the following courses:

Ed	511	Historical Foundations in Education.....	2	s.h.
Ed	512	Philosophical Foundations in Education.....	2	s.h.
Ed	513	Social Foundations of Education.....	2	s.h.
- IV. Research Techniques—the following course is required. It should be scheduled early in the student's program:

Ed	515	Elements of Research	2	s.h.
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SOCIAL SCIENCE

Curriculum for Master of Education Degree

Students working for this degree with a major in Social Science will complete the thirty (30) semester hours of work in accordance with the following divisions:

- I. Subject Matter Concentration Area—fourteen to twenty-two (14-22) semester hours of work in subject matter content are to be selected from the following courses: A minimum of 12 semester hours is to be elected in the Social Studies field. A maximum of four semester hours may be elected in allied fields (Geography, English, Foreign Language). Courses must be elected in four of the six Social Science divisions.

Social Science Seminar—Preliminary to the selection of a thesis or research topic, the student must program a seminar in one social science seminar.

HISTORY

SS	531	Economic and Social History of Pennsylvania.....	2 s.h.
SS	532	U. S.-British Commonwealth Relations.....	2 s.h.
SS	533	Social and Intellectual History of U. S.....	2 s.h.
SS	541	Modern European Problems	2 s.h.
SS	542	Contemporary Latin American Problems.....	2 s.h.
SS	543	Modern Asian-African Problems	2 s.h.
SS	544	History Seminar (Prerequisite: Ed 515).....	2 s.h.
SS	545	History of Russia	3 s.h.
SS	546	History of Europe: 1815-1914.....	3 s.h.
SS	547	History of England II	3 s.h.

ECONOMICS

SS	551	International Economics	2 s.h.
SS	552	Comparative Economic Systems	2 s.h.
SS	553	Contemporary Economic Issues	2 s.h.
SS	554	Economics Seminar (Prerequisite: Ed 515).....	2 s.h.
SS	555	Industrial Relations	3 s.h.

POLITICAL SCIENCE

SS	571	Foreign Policy Studies	2 s.h.
SS	572	Comparative Political Studies	2 s.h.
SS	573	Regional Political Studies	2 s.h.
SS	574	Political Science Seminar (Prerequisite: Ed 515)...	2 s.h.
SS	575	American Political Parties	3 s.h.

SOCIOLOGY

SS	562	Deviant Behavior	2 s.h.
SS	563	Intergroup Relations	2 s.h.
SS	564	Sociology Seminar (Prerequisite: Ed 515).....	2 s.h.

PHILOSOPHY

Phil	581	Problems in Logic	2 s.h.
Phil	582	Problems in Ethics	2 s.h.
Phil	583	American Philosophical Thought	2 s.h.
Phil	584	Philosophy Seminar (Prerequisite: Ed 515).....	2 s.h.

ANTHROPOLOGY

SS	591	Studies in Anthropology	2 s.h.
SS	592	Comparative Cultures	2 s.h.
SS	593	The Science of Culture	2 s.h.
SS	594	Anthropology Seminar (Prerequisite: Ed 515)....	2 s.h.
SS	595	Pre History	2 s.h.
SS	599	Contemporary Europe	6 s.h.

II. Professional Studies—four to ten (4-10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:

Ed	516	Statistical Methods in Education I.....	2 s.h.
Ed	518	Seminar in Sensory and Audio-Visual Materials.....	2 s.h.
Ed	550	Thesis	2 to 4 s.h.
Psy	531	Psychology of the Exceptional Child.....	2 s.h.
Psy	532	Studies in Pupil Adjustment.....	2 s.h.
SS	510	New Viewpoints in Social Science Instruction.....	2 s.h.
SS	514	Research Methodologies in the Social Sciences.....	2 s.h.

III. Foundations of Education—two (2) semester hours of work to be selected from the following courses:

Ed	511	Historical Foundations of Education.....	2 s.h.
Ed	512	Philosophical Foundations of Education.....	2 s.h.
Ed	513	Social Foundations of Education.....	2 s.h.

IV. Research Techniques—the following course is required. It should be scheduled early in the student's program:

Ed	515	Elements of Research	2 s.h.
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RESEARCH REQUIREMENT FOR THE DEGREE

The candidate for the Master of Education degree at Indiana must satisfy the research requirement as established by the Graduate Council. This requirement is essentially that the candidate must conduct an independent study related to his major field and report on this study with a written thesis or research project, recital, or other approved form of report.

The study may be in a subject field or in professional education. A thesis will carry from two to four hours of graduate credit as determined by the chairman of the thesis committee and the Dean of the Graduate School. The Dean of the Graduate School will apply the thesis credit to the student's program in the Subject Matter Concentration Area or in the area of Professional Studies depending on the nature of the topic selected. The research project does not carry graduate credit and, unlike the thesis or recital, may not be counted as part of the thirty semester hours required for the degree.

Purposes of the Research Requirement

The initiation, conduct, and description of a research study results in professional growth usually not attained in other ways. The completed thesis or research project certifies that the student is competent to identify a research topic and to pursue research in his field. An acceptable research report should show evidence that the student:

1. Has comprehended the essentials of his problem, has followed a well-organized plan of work, and has presented satisfactory solutions.
2. Has made a comprehensive study of the related literature.
3. Has made an independent and intensive study of the problem.
4. Has a practical working knowledge of research procedures.
5. Has shown the ability to write in a professional style.
6. Has reached conclusions justified by the findings.
7. Has produced a report of value to the subject field or to professional education.

Distinction Between a Thesis and Research Project

The basic distinction between a research project and a thesis is as follows: the project must make a contribution to the student by helping him to improve his teaching or other educational activity; the thesis, in addition, should contribute new knowledge to the field of study.

The project need not represent original research and may consist of adapting other findings to the student's local situation or of repeating other investigations in different circumstances. The thesis, however, should make a contribution to the student's field of inquiry—a far more rigorous condition than that established for the project.

Minor distinctions may be made with regard to the extent or scope of the study and the level of research competence needed to accomplish the study, but these are distinctions subordinate to the basic one given above. Deciding if a particular activity is of a thesis or project nature is primarily the responsibility of the student's adviser who must determine if the study will truly contribute to the field or if it will adapt available data to a new situation.

Steps in Satisfying the Research Requirement

1. The course, "Elements of Research," Ed 515, is designed to help students plan their research. Since many studies require considerable time for completion, it is desirable to schedule Ed 515 early in the graduate program, although it is helpful if the student has completed some work in the major field first. The most advantageous point in the student's program is usually after completing 4 to 8 hours of graduate work. As part of the requirements for Ed 515, the student will prepare a written plan for the investigation of a problem, or research proposal.
2. The student should discuss his proposed research with his department chairman and select a research adviser. The student, with the approval of his adviser, should decide on a research project, thesis, recital, or other form of report. Formal approval of the topic may not be obtained until the student has been accepted as a degree candidate (see Admission to Candidacy for the Degree—page 16).
3. The student submits the research proposal to his adviser and secures formal approval of the proposal. A research project proposal requires the approval of the adviser, the Director of Research, and the Dean of the Graduate School. A thesis or recital proposal requires the approval of the committee and the Dean of the Graduate School. A thesis committee will normally consist of the adviser, the chairman of the major department, the Director of Research, and at least one other faculty member.
4. After securing formal approval of his research proposal, the student should conduct his investigation and begin writing his report as soon as possible. In most cases the approval of the research proposal will expire after one year. The adviser and Director of Research should be kept informed on the progress of the study. A rough draft of the project or thesis should be submitted for review well in advance of the deadline date for the final draft.
5. The final draft of a thesis or research project should be submitted as early as possible and preferably well in advance of the deadline date. The deadline date for final draft of the project or thesis or for the recital performance for January graduates is the preceding December 1; for May graduates, April 1; and for August graduates, July 1. The final draft should be typed and be as free from errors as the student is

able to make it. Only minor corrections will be permitted after the deadline date and in the event major revision is required which cannot be completed before this date, the student will be required to postpone graduation. When the final draft has been approved, the student will be given instructions for preparing the finished copies of the project or thesis. A project must be approved by the adviser, the Director of Research, and the Dean of the Graduate School. A thesis or recital must be approved by the student's committee and the Dean of the Graduate School.

6. The finished copies of the project or thesis, together with the required abstracts, must be submitted prior to commencement. The style and format of the finished copies must conform to the style manual and additional instructions adopted by the Graduate School.
7. Duplicate copies of the research proposal and drafts of a thesis or project should be retained by the student. The Graduate School cannot accept the responsibility for the loss of such materials.

The Advisory System

The purpose of the advisory system is to insure that the student's work follows a coherent, well-balanced, and unified program for his professional growth and development. The advisory responsibility falls into two parts:

1. As soon as the student is permitted to schedule courses in the graduate school it is the student's responsibility to contact the Chairman of the Department of his graduate major field and request that he (the student) be assigned as an advisee to a graduate faculty member within this department. The responsibility of this adviser in cooperation with the Chairman of the Department and the Dean of the Graduate School includes the following:

- a. To assist the student in preparing his plan of graduate study.
- b. To recommend the student for admission to candidacy upon completion of the necessary requirements.
- c. To aid the student in the selection of an adviser for completion of research requirements after he is accepted for candidacy.
- d. To encourage the student to attend seminars for the discussion of the nature of the graduate program.

2. After acceptance of candidate for the degree: The graduate student will be assigned or may choose with the approval of the Dean of the Graduate School, a faculty adviser to assist him in his graduate research. Necessary changes in advisers may be made at the discretion of the Dean of the Graduate School. This adviser should be competent in the student's area of specialization, as his primary responsibility is to assist the student in choosing, preparing, and presenting his thesis or project in oral and written form as a demonstration of professional competence.

DEPARTMENT INSTRUCTIONS AND COURSE DESCRIPTIONS

ART

Lawrence F. McVitty, Chairman

Robert Cronauer
Thomas Dongilla
Alice Ghrist
John Christ

James Innes
Joanne Lovette
Ralph Reynolds
Frank Ross

Robert Seelhorst
Robert Slenker
Robert Small
Robert Vislosky

The graduate program directed toward a Master of Education degree in Art assumes that the student has reached a point of desire to increase his abilities in his chosen field. The curriculum makes it possible for students to select a balanced program of professional studies combined with fine and applied arts and crafts. Choices can be made with the assistance of a graduate adviser, appointed early in the student's entrance into graduate study. The student should analyze the requirements for the degree in connection with his own needs, selecting courses which will assist in making him a stronger person in his chosen profession. The student will elect an advisor for his research area.

Creative Research: Must be initially approved by a committee of no less than three members of the Art Department who will act as a jury to evaluate progress and give final departmental approval to the research.

Art 510 Art and the Exceptional Child 2 s.h.

Recent trends in education have required more specific understanding of particular students. This course is designed to consider the characteristics and needs of the mentally retarded and the intellectually gifted child with particular emphasis on the art aspects of their education. (Vislosky, Seelhorst, Slenker)

Art 511 Curriculum Development, Supervision, and Administration in Art Education 2 s.h.

This course offers a study of the organization, direction and supervision of programs of art education in grades 1-12, with emphasis placed on the administrative aspect. Curriculum development, scheduling, the selection, evaluation and requisitioning of art materials, guidance of art and classroom teachers (in-service training), multi-sensory materials, personnel selection, public relations and physical facilities are typical problems. (Lovette, Cronauer, McVitty)

Art 513 Research and Philosophy in Art Education 2 s.h. (Prerequisite: Ed 515)

This course will be required of all Art Education Majors. It will consider the history and philosophy of art education in Europe and America in order to shape concepts of the art program of the future. Opportunity will also be provided to review research related to the foregoing so that the student may define his own research problem or thesis. (McVitty, Seelhorst, Lovette)

Art 521 Contemporary Movements in Art 2 s.h.

Current philosophies and trends in fine arts and art education as they apply to human growth and development will be studied. Research and round table discussion of contemporary art forms will help the student to discover the concepts involved in art expression and how they evolved. (Non-Art Majors.) (Small, Seelhorst, Innes)

Art 522 Art In America 2 s.h.

This course surveys American art and its relation to the development of American ideas and ideals. (Seelhorst, Small, Innes)

Art 523 Seminar in Art Criticism**2 s.h.**

This course explores the various philosophic theories of art and art products. An attempt will be made not only to relate these theories to the senses and form itself, but also to technical, psychological, and cultural values. The primary concepts explored are play, illusion, imitation, beauty, emotional expression, imagination, empathy, creativity, and experience. Some time will be given to forms of art that are not primarily visual, including music, dance, literature and poetry. (J. Christ, Seelhorst)

Art 524 Art of the East**2 s.h.**

The aspects of Eastern Art will be studied as to the nature of their origin, meaning, and place in contemporary world culture. (McVitty, Innes)

Art 525 Architectural Influences in a Contemporary Society**2 s.h.**

Architecture is studied in its relation to the needs of contemporary life. Experimental problems in structure and aesthetics as related to architecture are explored. Attempts are made to search out the historical roots of many contemporary styles of architecture. (Seelhorst, Slenker)

Art 526 Exotic Art and Art in Latin America**2 s.h.**

Not all cultures are of Graeco-Roman heritage. This course will be designed around the art of other cultures, sometimes called primitive, in order that we may recognize the nature of the artistic contribution of these peoples. (J. Christ, Innes)

Art 527 Renaissance Art**2 s.h.**

This is the study of the great art achievements of the Renaissance in the fields of painting, architecture, sculpture, and the minor arts. Achievements in the humanities and their relationships are studied against the background of the social, economic and political developments of the era. (Innes, Reynolds, J. Christ)

Art 528 World Art Since 1875**2 s.h.**

The ferment which began in the French Revolution and carried through World Wars I and II has been accompanied by similar revolutions and upheavals in human life and art. This course will consider the discoveries and advances in artistic expression in modern times. Subject matter for study may be found in any or all of the arts. (Seelhorst, Innes)

Art 540-541-542 Graduate Studio in Ceramics I, II, III**2-6 s.h.**

These advanced courses in ceramics emphasize the total working process—the selection and preparation of clay bodies, manipulation of clay to achieve expressive form, exploration of decorative techniques. Acquiring familiarity with glaze materials and ability to formulate glazes, as well as control of the firing process, are requisites. Search for sources of equipment and supplies lead into the related aspects of studio planning. (Ross, McVitty)

Art 543 Exhibition Techniques**2 s.h.**

Presenting works of art well has become the duty of many in the field of art. This course will consider the requirements of Museology as problems in the design of display installations. Field trips will be taken to museums in the area. (Lovette, Slenker)

Art 544-545-546 Graduate Studio in Fabrics I, II, III**2-6 s.h.**

The fundamentals of fabric construction and some history of weaving processes are discussed. Warping, threading and basic weaves will be included in Studio I.

Studio II and III will consider drafting and work on more complex harness looms. The experimental attitude will be maintained in all classes. (McVitty)

Art 547-548-549 Graduate Studio in Jewelry and Metal Work I, II, III 2-6 s.h.

Advanced study dealing with specialized problems in the design and execution of metal work and jewelry. A thesis may be developed based upon research in one of the areas relating to this field, history, materials, tools, processes, or teaching techniques of the craft. (Dongilla, Cronauer)

Art 550-551-552 Graduate Studio in Sculpture I, II, III 2-6 s.h.

This is an advanced course in which students are expected to work on more complex problems of sculpture. A student may explore one or several sculpture or modeling media. (Dongilla, Slenker)

Art 553-554-555 Graduate Studio in Crafts I, II, III 2-6 s.h.

Specialized study and experiences are related to the design and execution of problems relating to wood as a crafts material. Opportunity is presented for more intensive exploration of the materials and processes of this craft employing both hand and power tools. (Dongilla, Cronauer)

Art 556 Graduate Studio in Theater Arts or Dramatic Arts 2 s.h.

The limitations and possibilities of the stage are considered. Practical stage experience is gained through the application of the elements of form, scale, proportion, color, lighting, and construction in the production of a play. A variety of design is experienced through the construction of model sets. Materials are organized for both classroom and auditorium programs. (Vislosky, Seelhorst)

Art 561 Graduate Studio in Drawing 2 s.h.

Drawing as a language is the principle concern of this advanced course. The continued development of skill in communication and expression in all kinds of materials and media is an objective. The drawing as an intimate work of the artist will be stressed. (Reynolds, Innes, Dongilla)

Art 562-563-564 Graduate Studio in Oil Painting I, II, III 2-6 s.h.

Traditional and contemporary methods and techniques in the area of plastic painting media are experienced. Composition, in relation to the modern painters' problems, is stressed. Opportunity is presented for exploration and specialization in depth as well as breadth. (Cronauer, Reynolds)

Art 565-566-567 Graduate Studio in Water Color Painting I, II, III 2-6 s.h.

Painting in opaque, transparent and mixed water color media will be attempted in the contemporary and historical procedures. Designed painting and emotional expression will be carried along together. Experimentation in combinations with other media are encouraged. (Reynolds, Cronauer)

Art 568-569-570 Graduate Studio in Print Making I, II, III 2-6 s.h.

This is a study on the graduate level of the modes, media, material, techniques and processes of the graphic arts and their use in expression. The student may concentrate on the intensive exploration of one media in depth or explore a number of media for breadth of experience. (J. Christ, Small)

Art 571 Graduate Studio in Mural Painting 2 s.h.

In this course the individual student should acquire a working knowledge of the materials and processes employed in mural painting, such as fresco, encaustic, oil and mosaic. The historical development of the mural as an art form should be considered as to its influence upon, and reference to, the modern mural. (Cronauer, Seelhorst)

Art 512-515—These numbers will be reserved for seminars of visiting artists as announced.

BUSINESS EDUCATION

A. E. Drumbheller, Chairman

Mary Jane Boering
Charles CooperJames Stoner
Harold Thomas

The graduate program in Business Education at Indiana is primarily designed to permit the student to broaden his understanding of the business world and to study his teaching procedures in the light of new experiences.

A study of the curriculum presently offered indicates that from fourteen to sixteen credit hours are to be taken in a subject matter concentration area. Students should select courses in the basic business area along with courses from at least one of the areas concerned with either accounting, secretarial or retailing. Two courses which all degree candidates must schedule are Bus 510, Business Communications and Report Writing, and Bus 552, Seminar in Business Education.

Courses in the subject matter concentration area should be scheduled early, making use of those courses in the general studies and foundation of education areas as they can be fitted into one's schedule as the work progresses. The course in Elements of Research should be taken early but not as a first course. In this course plans for a project or thesis are made—this part of the program should not be delayed.

Bus 500 Accounting Systems**2 s.h.**

A study of the accounting principles as applied in constructing accounting systems. Special attention will be given to the problems of management as they relate to accounting systems. This is to be done with the idea of building a system to give management the information desired for effective operation of the business. (Stoner)

Bus 501 Principles of Tax Accounting**2 s.h.**

The fundamentals of Federal Income Tax Accounting are presented under the latest amendments to the Internal Revenue Code. The various income tax blanks and forms are presented and filled in with special emphasis upon the returns of individuals, single proprietorships and partnerships. (Drumbheller)

Bus 502 Advanced Tax Accounting**2 s.h.**

This course is designed to give the student further familiarity with the Federal Income Tax law with emphasis upon the law concerning corporate returns, estates and trusts, federal estate tax and gift tax. Bus 501 is a prerequisite to taking this course. (Drumbheller)

Bus 503 Financial Statement Analysis**2 s.h.**

This course is designed to give a detailed analysis and interpretation of financial statements with advanced problems supporting the theory presented. Particular types of statements as they apply to public utilities, industrials, and moneyed corporations are introduced. (Cooper)

Bus 504 Budgeting and Cost Analysis**2 s.h.**

The preparation and use of flexible expense budgets; the establishment of production cost standards and the analysis of cost variances; extensive analysis of cost control and profit planning programs; and direct costing. Prerequisite: Elementary Cost. (Cooper)

Bus 510 Business Communications and Report Writing**2 s.h.**

A study and composition of effective written communications. Emphasis on the positive approach, clear statements, and good form and structure. The organization and preparation of reports of the types used in education, business and government. Techniques of collecting, interpreting, and presenting information useful to executives will be studied. (Boering)

Bus 511 Advanced Shorthand for Teachers 2 s.h.

To provide teachers of stenography and transcription with an opportunity to increase their proficiency in writing and transcribing Gregg shorthand, thus enabling them (1) to demonstrate skills in the classroom, and (2) to analyze student learning difficulties; to review the basic techniques of skill development; to provide practice in rhythmic and office style dictation; to increase ability to take sustained dictation by use of modern teaching aids including tapes and records; and to enable the teacher to write fluent shorthand outlines in dictation at the chalkboard. (Boering)

Bus 512 Office Organization and Management 2 s.h.

Duties and responsibilities of the office manager; principles of practical office management and their application. Includes survey and analysis development of manuals and their use; selection, training, pay and promotion of office employees; controlling expense and measuring office efficiency; quality and quantity standards; purchase and use of equipment; and report writing. (Boering)

Bus 520 Retail Organization and Management 2 s.h.

This course will be directed toward the many problems of retail management. It will include a study of the present day trends in retailing, personnel management, merchandise control, pricing, promotion, services, accounting, and expense control. (Thomas)

Bus 521 Principles of Marketing 2 s.h.

A study of the risks, costs, and methods in the distribution of goods of farm and industry. A comprehensive analysis of such problems as research, competition, pricing, and laws in marketing goods from the manufacturer or producer to the consumer. (Thomas)

Bus 530 Money and Banking 2 s.h.

The course deals with the development of the monetary system of this country with particular attention to its present structure of our banking system. Relationship between our monetary system and our economy, means of control of our monetary system and the function and structure of the Federal Reserve System will be considered. (Drumheller)

Bus 531 Principles of Investment in Securities 2 s.h.

It is the purpose of this course to familiarize the student with the many forms of investment possibilities which exist. Attention will be given to the operation of the stock markets, concepts and terminology of investing, mutual funds and their function, investment clubs and the problems involved in making investments through brokers, bankers, and stock promoters. (Cooper)

Bus 532 Current Business Economic Problems 2 s.h.

Selected economic problems of current interest and concern to society will be analyzed. An examination will be made of basic economic principles and theories as well as the thinking of recognized economists in connection with the problems studied. (Staff)

Bus 533 Case Problems in Business Law 2 s.h.

It is to be assumed that the student has a knowledge and background of the theory of business law prior to taking this course. The course deals with the solution of case problems as applied to the various topics in the field of business law. (Staff)

Bus 534 Consumer Economic Problems 2 s.h.

A program for the education of intelligent consumers is planned for this course. How to gain the maximum satisfaction from goods and services available to the consumer is an important consideration. An effort will be made to develop an appreciation of the problems of the producer, distributor as well as those of the consumer. (Cooper)

Bus 536 Automated Data Processing

4 s.h.

This course covers the theory and fundamentals of operating and wiring electronic unit record equipment-key punch, reproducing punch, sorter, interpreter, 407 accounting machine. 1 hr. lecture, 3 hr. lab. daily. Prerequisite: Certificate to teach. (Wink)

Bus 540 Office or Retail Work Experience

4 s.h.

The graduate student who has not had extensive business experience is given the opportunity to work full-time for six weeks during the summer in a business position under the supervision of the college. Evening seminars will be held weekly to discuss problems related to the work experience program. A written report of the experience will be required. (Staff)

Bus 550 Principles and Problems of Business Education

2 s.h.

The purpose of this course is to survey the basic principles and practices of business education. Among the topics considered are: history of the high school business program, purposes, attitudes of management and labor toward education, the relationship of general education to business education, and trends in the field. (Stoner)

Bus 551 Administration and Supervision of Business Education

2 s.h.

This course offers an opportunity to study the problems of organizing, directing, and supervising business education programs. Such matters as the functions of the administrator and supervisor of business education, textbook selection, teacher selection, testing programs, conferences, equipment and lay-out are considered. (Drumheller)

Bus 552 Seminar in Business Education

2 s.h.

This course is devoted to a critical examination and evaluation of current literature and research in business education. The graduate student is expected to conduct an extensive study of literature representative of the entire field of business and an intensive study in one or more specialized areas compatible with his professional interests and activities. Investigation of procedures used in current and outstanding research studies is emphasized. (Staff)

Bus 560 Improvement of Instruction in Secretarial Courses

2 s.h.

A course for experienced business teachers. Teaching procedures basic to the development of vocational proficiency in shorthand, typewriting, and transcription including: content; methods; teaching aids; available instructional materials; measurement of skills; and standards of achievement. (Staff)

Bus 561 Improvement of Instruction in Basic Business Courses

2 s.h.

This course is designed for experienced classroom teachers and for prospective teachers specializing in the basic business subjects. It deals with the aims of business education; its relation to vocational and general education; available instructional materials; curricular organization; teaching aids and devices; techniques for improving instruction; and other teaching problems and such subjects as Junior business training or general business, economic geography, business law, consumer education, salesmanship, and business economics. (Duncan)

**Bus 562 Improvement of Instruction in
Bookkeeping and Business Arithmetic**

2 s.h.

A study of problems and techniques in the teaching of bookkeeping and arithmetic for experienced and prospective business teachers. Topics include: objectives; the place of bookkeeping and arithmetic in the curriculum; planning for teaching; techniques for improving instruction; resource materials; standards; construction of courses to meet special needs; the use of practice sets; testing and grading; and visual aids. Teaching problems of students will be emphasized. (Stoner)

Bus 570 Economic Backgrounds of Business**2 s.h.**

This course is designed to provide a thorough overview of the economic environment in which business and other agencies must operate. The student will gain a broad perspective of business operations through such topics as business organization and management, consumption of goods, business risks, business cycle, budgeting and investments. This course is not open to Business Education Majors, but is designed for a general studies course in the Elementary and other programs. (Stoner)

COUNSELOR EDUCATION

Stanley Lore, Chairman

A. Dale Allen
James W. Laughlin
William J. Leventry

Robert H. Saylor
Edward D. Shaffer

Dorothy Snyder
George L. Spinelli
James C. Wilson

A student who becomes a candidate for a Master's Degree in Counselor Education, will be assigned to an adviser who will aid him in planning his program. Certification as a guidance counselor may require the completion of additional courses beyond the Master's Degree.

It is important that counselor education majors have an understanding of the basic principles of psychology, and a sufficient background in mathematics to comprehend the statistical materials and methods with which the guidance counselor must be familiar.

Philosophy and Principles of Guidance should be scheduled as the first guidance course. Statistical Methods in Education I should be completed as early as possible in the program as a prerequisite for the courses in Evaluative Methods in Guidance. It is expected that guidance majors will select a research topic related to guidance, and that Elements of Research will be scheduled sufficiently early in the program to permit adequate preparation for timely completion of the research project or thesis.

CnEd 531 Philosophy and Principles of Guidance**2 s.h.**

This course is designed to give an overall view of the philosophy of guidance as it relates to the total educational program. It stresses the functions and implementation of guidance services, duties of guidance counselors, how guidance programs are organized, and deals with the common problem areas in guidance. It provides a framework for those seeking additional preparation leading toward certification as counselors. This course is a prerequisite for all other courses in counselor education. (Allen, Leventry, Shaffer)

CnEd 525 Guidance Services in the Elementary School**2 s.h.**

This course is concerned with an overview of the total guidance function as it would apply to the elementary grades. Emphasis will be upon wide coverage of guidance concepts. (Snyder)

CnEd 533 Evaluative Methods in Guidance I**2 s.h.**

Emphasis in this course is placed upon the development of competency in selecting and evaluating tests and measures. Consideration is given to validity, reliability, norms, standardization, and other specific criteria. A study of intelligence tests is included with emphasis upon instruments used in group screening. (Spinelli, Wilson)

CnEd 534 Evaluative Methods in Guidance II**2 s.h.**

This course is in intensive study of selected representative tests and instruments in areas of aptitude, achievement, interest, and personality. Emphasis is placed upon group and screening tests rather than on individually administered tests. (Spinelli)

CnEd 535 Study of the Individual (Case Studies) 2 s.h.

This course is designed primarily to study the principles, problems, methods and content involved in developing case studies. Consideration will be given to the kinds and the scope of data needed for understanding and to the role and the relationships concerned. (Wilson)

CnEd 536 The Information Service in Guidance 2 s.h.

This course is designed to present the information service as a distinct and vital part of the total guidance services. Emphasis is placed upon the relationship between the information service and other guidance services; the theories related to decision-making; the use of information in the process of educational, social, and vocational development; the collection, evaluation, filing, and uses of information; and the programming of information activities. (Allen, Saylor)

CnEd 537 Interview Techniques in Counseling 2 s.h.

This course deals with the theories, objectives, principles, and practices of counseling with individuals. All facets of interviewing techniques are stressed. Consideration is also given to the utilization of test results, educational and vocational information, and other pertinent data in the counseling interview. (Spinelli, Shaffer)

CnEd 538 Organization and Administration of Guidance Services 2 s.h.

It is the primary purpose of this course to provide the guidance worker with the necessary competencies to organize, administer, and evaluate guidance programs. Emphasis is placed upon the development of a guidance philosophy and statement of objectives; the development and implementation of evaluation criteria; and the application of organizational and administrative principles, methods, techniques, and tools to the guidance services. (Laughlin, Saylor)

CnEd 539 Group Procedures in Guidance 2 s.h.

This course deals with the group procedures which will improve student readiness for individual counseling. The psychological aspects of group structure and behavior and the influence of the group upon the individual are examined in order to plan, implement, and evaluate the various group procedures in guidance. Techniques to identify needs common to individuals are investigated and analysis of results employed to determine those for which group procedures are appropriate. (Leventry, Saylor)

CnEd 541 Supervised Experience in Counseling (Includes weekly seminar in techniques and individual diagnosis) 4 s.h.

This block of work brings together in an applied way virtually all of the tool subjects in guidance. Proceedings are carefully observed, supervised, and evaluated using closed-circuit television, tape recorders, and one-way vision screens. (Staff)

CnEd 542 Seminar: Organization and Dissemination of Educational Information (Staff) 1 s.h.**CnEd 543 Seminar: Utilization of Community and Educational Resources (Staff) 1 s.h.****CnEd 544 Seminar: Curriculum Utilization (Staff) 1 s.h.****CnEd 545 Seminar: Field Problems (Staff) 1 s.h.****CnEd 550 Practicum in the Supervision of Guidance Workers 4 s.h.**

This block of work is especially designed to give the director of guidance practical experience in the supervision of guidance workers. This course is closely integrated with Counselor Education 541—Supervised Experience in Counseling. (Staff)

EDUCATION

Stanley Lore, Chairman

A. Dale Allen
Lois Blair
Maude Brungard

Don-Chuan Chu
Marshall Flamm
Charles Leach
J. Robert Murray

Anna O'Toole
Dorothy Snyder
Harold Youcis

Ed 511 Historical Foundations of Education**2 s.h.**

A study of the historical development of American education. European influences of the philosophies and practices of American schools will serve as a background for the course. Emphasis will be placed on the development of education in America as influenced by various individuals and schools of thought. Historical trends will be related to current problems and practices in education. (Glott, Youcis)

Ed 512 Philosophical Foundations of Education**2 s.h.**

The development of principles upon which to base instruction, recent developments in scientific methodology, and theories of curriculum and school organization will be considered in this course. Stress will be placed upon the essential phases involved in building an individual working philosophy of education. (Chu)

Ed 513 Social Foundations of Education**2 s.h.**

This course will deal with those social and cultural forces which influence education and the ways in which education has been affected by them. Particular stress will be placed upon current problems as they relate to the entire educational system and to curricular problems and practices in today's schools. (Lore, Youcis)

Ed 515 Elements of Research**2 s.h.**

Selection of a research problem, collection of data, types of research, the research report, and the use of the library in connection with the research problems will be studied. Elements of statistics are introduced. This course provides background for the preparation of the thesis or research project, and enables the student to become an intelligent consumer of the products of educational research. As part of the requirements for this course the student will prepare a written plan for a research project or thesis. (Leach)

Ed 516 Statistical Methods in Education I**2 s.h.**

Consists of measurement and statistical techniques as used in teaching, school administration, and common educational research. The basic descriptive statistics, including measures of central tendency, variability and correlation will be developed. The reliability and validity of test scores will also be discussed. Emphasis will be placed upon the use of the statistical techniques studied and their interpretation. (Leach, Staff)

Ed 517 Statistical Methods in Education II**2 s.h.**

Advanced statistical devices for educational research workers. The basic concepts of statistical inference and prediction will be developed, including regression and prediction, hypothesis testing, analysis of variance, and partial and multiple correlation. Emphasis will be placed upon the use of interpretation of the techniques studied. Prerequisite: Ed 516 or equivalent. (Leach, Staff)

Ed 518 Seminar in Sensory and Audio-Visual Materials**2 s.h.**

This is a psychology of learning course. Major emphasis will be placed upon the differences among learning, materials, learners and teaching methods. The student will have the opportunity to do literary research in these areas. (Murray)

Ed 522 Principles and Practices in Speech Improvement 2 s.h.

This course will provide for a study of the normal development of speech, classroom methods in speech improvement, and special consideration for children handicapped in speech or hearing. Library research, project work, demonstrations and experimentation will be heavily stressed. (Brungard, Flamm)

Ed 531 Reading Problems of Junior and Senior High School Students 2 s.h.

This course is planned to help the secondary or special teacher to understand and participate in the developmental reading program at the Junior and Senior High School levels, and to work with those pupils who are not able to achieve satisfactorily because of reading problems.

Special help is given in the basic reading and study skills, the diagnosis and correction of reading difficulties, the techniques of improving rate and comprehension, and the development of readiness for reading in the content field. (Snyder, Staff)

Ed 534-535 The Diagnosis and Remediation in Reading-Theory and Clinical Practice 4 s.h.

This course deals with understandings, techniques, and material that aid teachers to prevent, discover, and correct the weaknesses and wrong learnings in reading of the student who is not achieving satisfactorily. The instruments for study will include a variety of tests, informal evaluations, and other helps. All areas and all levels of reading are considered. This involves two (2) courses each offering two (2) semester hours credit. Prerequisite: Course(s) in reading—Undergraduate, Ed 533 or Ed 531. (Snyder, O'Toole)

Ed 540 Supervision and Student Teaching 2 s.h.

Designed for supervising teachers and others working with student teachers, this course provides opportunity for the development of pertinent materials and for continuous evaluation of various aspects of the student teaching program. Stress is also given to evaluate procedures used in working with prospective teachers. Basic principles underlying an effective student teaching program are examined from both a theoretical and applied viewpoint. Prerequisite: Teaching certificate and teaching experience. (Blair)

Ed 550 Thesis or Recital 2-4 s.h.

Students writing a thesis for credit will register for this course.

Recital: Graduate students in music education may prepare and perform a formal recital under the guidance of their private teacher in their major performing area. Approval for the presentation of a recital in lieu of the thesis must be secured from the graduate committee of the Music Education Department. A student should secure approval for this event early in his graduate program, but the actual performance of the recital should occur close to the end of his graduate program. (Staff)

ELEMENTARY

P. David Lott, Chairman

Herbert Wenger
Ralph Glott

Edward Mott
Anna O'Toole

El 531 Curriculum Problems in Elementary Education 2 s.h.

The curriculum will be studied in relation to local needs and resources. Special attention will be given to contemporary forms of organization and procedures for curriculum development. A student will concentrate his studies on a specific problem of area interest. (Lott)

El 533 Reading Disabilities of Elementary School Children 2 s.h.

This course will consider the identification, causes, and correction of reading disabilities. The mechanics, psychology of reading, and emotional factors involved will be studied. (O'Toole)

El 541 Special Problems in Elementary Social Studies 2 s.h.

The content of the social studies in the elementary school as it contributes to world understanding and the American cultural heritage will be included in this course. Each student will concentrate his studies on a special problem or area of interest. (Mott)

El 542 Arithmetic in the Elementary School 2 s.h.

An overview of the development of arithmetic as a part of the elementary school curriculum will be presented. It will emphasize curriculum development based upon research in arithmetic, special problems in the teaching of arithmetic and the literature which should be known to a teacher of arithmetic. Prerequisite: The Teaching of Arithmetic. (Mathematics Staff)

El 543 Resource Materials in Elementary Science 2 s.h.

This course is designed to give the elementary teacher experience with the literature, equipment, and materials used in teaching science in the elementary school. References dealing with experiments, demonstrations, and identification of plants and animals will be studied. Experiments and demonstrations will be emphasized. Science kits will be prepared which contain basic equipment that may be used in classroom situations. Field trips will be taken to observe materials in real life situations. Given in summer school only. (Science Staff)

El 544 Recent Trends in Elementary Language Arts 2 s.h.

This course will deal with trends, problems, and recent contributions of research in the language arts. Areas will include elementary English, spelling, penmanship, and children's literature. Each student will concentrate his studies on a special problem or area of interest. (Lott)

El 545 Experimental Studies in Art Education 2 s.h.

Teachers will undertake art experiences in various media as they are adapted to the provision of art experiences for the child. Emphasis will be placed on the stages of growth, type of motivation, and ways of administering stimuli. The class will study the exceptional child to learn to recognize and encourage evidences of art potential as well as wholesome self-expression. (Art Staff)

El 546 Modern Procedures and Skills in Elementary Music 2 s.h.

The purpose of this course is to provide the elementary teachers with new developments and techniques recommended for music education. (Music Staff)

El 547 Resources Materials in Children's Literature 2 s.h.

This course will be concerned with the selection and evaluation of children's literature as a resource for teaching and learning. Although traditional and modern literature in prose and poetry will be considered, much emphasis will be given to non-fiction. Ways will be studied to use these materials in the elementary school program. (Lott)

ENGLISH

James R. Green, Chairman

William Betts
Lorrie Bright
Morrison Brown
Robert Ensley
William Force

Samuel Furgiuele
Harry Haldeman
Raymona Hull
Lawrence Ianni

Dorothy Luckner
Maurice Rider
Helena Smith
Margaret Stewart
Craig Swauger

A candidate for a degree in English should plan to work on his research topic while he is completing other course requirements. Following Ed 515, Elements of Research, which should be taken early in the degree program but not as a first course, he should enroll in EngS 510, Bibliographical Methods in

English, in order to develop his thesis or project proposal. The thesis document itself, which will be completed independently after the proposal has been approved, will be granted no more than two hours' credit. A project is granted no course credit even though it satisfies a requirement for the degree.

Eng 510 Bibliographical Methods in English 2 s.h.

This course offers the student practical training in the special methods and materials of research in English. Required of all majors in English. Ed 515, Elements of Research, is a prerequisite. (Staff)

Eng 511 Seminar in the Teaching of English in the Secondary School 2 s.h.

A seminar to explore the recent developments in the teaching of high school English. Open only to those holding a certificate to teach English. (Brown)

Eng 512 American English Grammar 2 s.h.

In this course a study is made of the analysis of language patterns by the methods of structural linguistics. Study is also made of the principles for establishing levels of usage. Both areas are examined for implications in the teaching of English. (Green)

Eng 521 Modern European Fiction 2 s.h.

This course offers an intensive study in translation of the major fiction writers of the twentieth century exclusive of British and American. The older generation—Proust, Gide, Kafka, and Mann—will be studied in relation to representatives of contemporary Europe such as Camus, Moravia, Silone, and Sartre. (Lucker)

Eng 522 Chaucer 2 s.h.

The works of Geoffrey Chaucer are studied with special attention to the *Canterbury Tales* and *Troilus and Criseyde*. Pronunciation, versification, language, and textual problems will receive consideration. (Rider)

Eng 523 The Development of Modern English 2 s.h.

The course will study the origins and growth of the English language and the sources of English words. An examination will be made of the changes in English usage, with emphasis on the varieties of current spoken and written usage as a result of geographical, class, and situational differences. (Iami)

Eng 525 The Early English Drama 2 s.h.

The development of the English drama from 900 to 1500, with attention to classical and indigenous influences on specific plays and types of plays, will be studied. (Rider)

Eng 526 Shakespeare and His Contemporaries 2 s.h.

Plays by Shakespeare and some of his predecessors, contemporaries, and successors will be read. Plays will be chosen from the work of Marlowe, Lyly, Greene, Kyd, Jonson, Dekker, Beaumont, Fletcher, Webster, and Shakespeare. (Rider)

Eng 527 Restoration and Eighteenth Century Drama 2 s.h.

The British theatre from the Restoration period to Sheridan is studied in connection with the literary, historical, and social developments of the times. (Haldeman)

Eng 528 Milton 2 s.h.

This course provides for special studies in the prose and poetry of John Milton, with attention paid chiefly to *Paradise Lost* and the lyrics. (Rider)

Eng 529 The Romantic Poets 2 s.h.

This course will concentrate on the poetic values, religious conflicts, and social issues that affected the writings of the major Romantic poets. Practice will be given in analyzing form and tone as a guide to meaning. (Lucker)

Eng 530 Tennyson and Browning 2 s.h.

This course provides for special studies in the poetry of Tennyson and Browning. Attention is given to the Victorian milieu and to the development of Tennyson's and Browning's philosophy as it is reflected in their work. (Betts)

Eng 531A Major Writers: Emerson, Hawthorne, and Thoreau 2 s.h.

Emphasis is on a discussion of the ideas developed in *Walden*, *A Week on the Concord and Merrimac Rivers*, Emerson's *Essays*, *First and Second Series*, and several of Hawthorne's novels, as well as some of the shorter writings. Each student is responsible for investigating one particular area of comparison among the writers. (Hull)

Eng 531B Major Writers: Faulkner and Hemingway 2 s.h.

This course considers the novels and short stories of William Faulkner and Ernest Hemingway, with attention to each writer's influence on modern fiction. (Swauger)

Eng 531C Major Writers: Thomas Hardy 2 s.h.

Special studies are conducted in the poetry and fiction of a major writer of the late nineteenth century. (Betts)

Eng 531D Major Writers: Whitman and Twain 2 s.h.

The course considers these writers in relation to the development of realism in American Literature. The poetry and prose of Whitman are studied intensively. Students read selected novels and short fiction by Twain. (Smith)

Eng 531E Major Writers: Poe and Melville 2 s.h.

The course deals with romantic elements and symbolism in the fiction and poetry of Poe and Melville's major writings. Attention is also given to the influence of each writer on later fiction. (Hull)

Eng 531F Major Writers: Henry James 2 s.h.

This course provides for extensive and analytical reading of short stories, novels and criticism of Henry James with attention to his influence on modern fiction as craftsman and critic. (Stewart)

Eng 531G Major Writers: Joseph Conrad 2 s.h.

Study is concentrated in the seven major novels and in a variety of the short stories of Conrad. (Betts)

Eng 533 British Drama Since 1880 2 s.h.

The modern temper in British drama is explored through modern British dramatists such as Pinero, Barrie, Milne, Maugham, Galsworthy, Priestly, Shaw, and some of the Irish Dramatists. (Force)

Eng 534 Types of the Novel 2 s.h.

Standards are established for such genres of the novel as the Historical Romance, the Novel of Ideas, the Novel of Manners, and Satiric Fantasy. English and American novels are read in several of these categories. (Ianni)

Eng 535 Criticism 2 s.h.

This is a course in the principles of literary criticism. Attention will be paid to major works of critical theory and to practice in the application of these principles. (Ianni)

Eng 536 Studies in Middle English and Renaissance Literature 2 s.h.

This course is a seminar in which a major sociological or ideological tradition of the Middle Ages and Renaissance will be studied to reveal its influence upon the literature of those periods. Among the areas of learning and tradition which may be considered are the chivalric code; courtly love and love melancholy; Greek, Roman, and Hebrew literature and mythology, and medieval science and medicine. (Rider)

Eng 537 Modern American Fiction 2 s.h.

Trends in contemporary American fiction provide a basis for special studies in such figures as Dreiser, Anderson, Fitzgerald, Lewis, Dos Passos, and Wolfe. (Swanger)

Eng 538 Victorian Prose 2 s.h.

This course examines the major social, political, economic, and religious issues as revealed in the prose writings of the period. (Lucker)

Eng 539 The Metaphysical Poets 2 s.h.

The characteristic lyric poets of the seventeenth century from Donne to Cowley are studied in relation to changing social and political conditions. (Bright)

Eng 540 Twentieth Century American Drama 2 s.h.

The contributions of the major dramatists of the twentieth century to the development of the American theater are considered. (Force)

Eng 541 The Rise of American Regionalism 2 s.h.

This course considers writers who drew their materials from the culture peculiar to a particular area. Such local colorists as Page, Harte, Harris, and Jewett are read. (Smith)

Eng 542 Contemporary British Novelists 2 s.h.

This course deals with a group of novelists selected for the study of trends in British fiction since 1940. (Stewart)

Eng 544 Seminar in the Psychology of Language 2 s.h.

Individual investigation is encouraged in this seminar into the research in language as behavior. (Green)

Eng 545 The Age of Pope 2 s.h.

A close examination of the works of Alexander Pope and those of his contemporaries who most strongly influenced the rise of neo-classicism in England during the early 18th century. (Furginele)

Eng 550 Workshop in Play Production 6 s.h.

The study of various styles of production and of the principles of directing in the preparation of plays for a high school audience. Included will be analysis of the script, methods of casting and rehearsal, and the technical aspects of production. The summer theater is used as a laboratory for observation and participation. (One day of lecture and library work, four days of laboratory.) (Ensley)

Eng 555 Realism in the American Novel (Stewart) 2 s.h.**Eng 556 Modern British Poetry 2 s.h.**

This course provides a close examination of major twentieth century British poets: Hardy, Hopkins, Yeats, Owen, Auden, Spender. (Not open to those who have had Eng 524—Contemporary Poetry.) (Betts)

Eng 557 Modern American Poetry**2 s.h.**

This course provides an intensive critical examination of the major twentieth century American poets from Eliot to the present. (Not open to those who have had Eng 524—Contemporary Poetry.) (Bright)

Eng 560 The Classics in Translation

A survey of the chief Greek and Roman writers of epic, lyric, and dramatic poetry, with historical background to be gained from the writers themselves and from illustrated lectures. Of interest especially to high school teachers of English who wish to enrich their background in classical literature and mythology. (Hull)

THE SUMMER INSTITUTE IN ENGLISH

The following three courses (Eng 570, 571, 572) constitute the course work for the Summer Institute in English, which may be offered in the main summer session. English teachers interested in this program may apply to the Director of the Summer Institute for further information.

These courses may be offered separately outside the Institute program in any semester.

Eng 570 Language**2 s.h.**

The course has three principal aims: (1) to introduce the teachers selected for the Institute to the idea of language as a field of study and to the assumptions and methods of linguistics; (2) to furnish them with some indispensable knowledge about the English language; (3) to encourage them to undertake further study and guide them in pursuing it. The program for the course will include an introduction to language and language study, phonology, systems of syntax, linguistic variety and the problem of standard usage, and the history of English. (Staff)

Eng 571 Literature**2 s.h.**

The aims of the course are to make the student aware of the power of literature to illuminate human experience and to give inexhaustible pleasure. These aims will be achieved by training in thoughtful and sensitive reading, supported by essential knowledge of the cultural context of literature. The teacher-student should gain skills in the use of metaphor, image, and symbol, awareness of point of view, analysis of structure, and semantic examination of meaning and tone. (Staff)

Eng 572 Composition**2 s.h.**

The aim of the course is to help secondary school English teachers become better writers themselves and better critics of writing. The course will deal mainly with expository prose. Short essays will be written which the instructor will analyze and criticize for revision. Rhetorical analyses will be made of selections of prose by professional writers. (Staff)

FOREIGN LANGUAGES

Edward Bieghler, Chairman

Herbert Isar

FL 521 Language and Society**2 s.h.**

The work of this course is designed to inform the student as to the salient facts of language and its fundamental role in the development and continuity of society and culture. Some points considered are: language families and their characteristics, factors of linguistic change and development, reciprocal influences of culture and language, linguistic borrowing, language and religion, and systems of writing. (Bieghler, Isar)

FL 525 Foreign Study (I)**6 s.h.**

Intensive study of the Spanish language and culture at the University of Valladolid, Spain, from approximately June 12 through August. For a detailed description see the Indiana State College publication, *The Pennsylvania-Valladolid Study in Spain Program*. (Isar)

FL 526 Foreign Study (II)**6 s.h.**

Continuation of FL 525 through the period September to approximately December 20. Intensive study of the Spanish language at the University of Valladolid with some attention to Spanish history, art, geography, and literature. Excursions and field trips to points of interest in Old and New Castile. (Isar)

NOTE: The 6 credits earned in FL 525 can be applied toward the Master's Degree at Indiana State College, representing elective credits. The 6 credits earned in FL 526 cannot be applied toward the Master's degree, but will go on the permanent record of the candidate.

FL 525 and FL 526 are of exceptional interest and value to persons who have begun the teaching of Spanish in recent years.

GEOGRAPHY

Thomas G. Gault, Chairman

Mamie Anderzhon
Donald Ballas
Vincent Miller

James Payne
Paul Prince
Robert Thomas

Charles Weber
David Winslow
Maurice Zaccir

The pursuit of a Master of Education Degree with a major in Geography presupposes that certain subjects normally included in the undergraduate major in geography have been successfully completed. The department, however, will accept outstanding applicants with limited background in Geography with the understanding that deficiencies will be made up, either through extra course work or through a personal reading program.

The Department invites students with a limited geography background to extend their general education through enrollment in geography as a related area. Students in Elementary, Social Science, Science, or Business may find geography courses closely related to their fields. The minimum prerequisite for entering all graduate geography courses is undergraduate World Geography (Geog. 101) or its equivalent.

Courses above 549 are not recommended for other than geography, social science, or science majors, but may be taken with written permission from the chairman of the Department.

Geog 521 Advanced Human Geography**2 s.h.**

The course is designed as a refresher course in geography for the non-geography major. Both systematic and regional studies will be made to acquaint the student with modern geography methods and techniques. (Gault, Ballas)

Geog 522 Political Geography**2 s.h.**

Geographic factors and conditions are analyzed as they are related to the character and function of states. Political institutions are evaluated in light of modern and historic geographic conditions. Emphasis is given to the great world powers and geopolitical thought. (Miller)

Geog 523 Urban Geography**2 s.h.**

An analysis is made of city types, patterns, and functions as influenced by geographic conditions and other factors. City planning techniques and field study are utilized. (Winslow)

Geog 524 Cultural Geography 2 s.h.

This course will study the literature and methods of cultural geography. Topics to be studied include population, settlements, human ecology, culture areas, and related features. Individual study, analysis and reports will be stressed in addition to lecture. (Ballas)

Geog 525-540 Geography Regional Seminars 2 s.h.

Seminars are designed to let the student develop to his greatest potential. Each region is examined in detail for soil, topography, climate, vegetation, population, and the interrelationships evolved. Great stress is placed on individual study and class discussion rather than lecture. Prerequisite: World Geography (undergraduate).

Geog 525—Africa, South of the Sahara (Ballas) 2 s.h.

Geog 526—India, Pakistan and Indo-Chinese Peninsula (Weber) 2 s.h.

**Geog 527—Mexico, Middle America and
West Indian Islands (Winslow) 2 s.h.**

Geog 528—South America (Thomas) 2 s.h.

Geog 530—U.S.S.R. (Payne) 2 s.h.

Geog 531—Northwestern Europe (Miller) 2 s.h.

Geog 532—Mediterranean World (Weber) 2 s.h.

Geog 534—China, Korea and Japan (Weber) 2 s.h.

Geog 535—Australia and Pacific Islands (Anderzhon) 2 s.h.

Geog 536—Polar Regions (Miller) 2 s.h.

Geog 537—Eastern United States (Payne) 2 s.h.

Geog 538—Western United States (Payne) 2 s.h.

Geog 539—Canada (Gault) 2 s.h.

Geog 540—Geography of Pennsylvania (Thomas) 2 s.h.

Geog 541—Agricultural Geography 2 s.h.

World agricultural patterns are the core of this course. Specific problems will be studied in view both of the countries involved and world environment. Stress will be placed upon individual study and research as well as classroom lecture. (Gault)

Geog 542 Industrial Geography 2 s.h.

Resources useful in the manufacturing process will be studied both as to their location and their place in the international exchange patterns of the world. Individual problems will be the core of the course placing great emphasis on research and reading. (Winslow)

Geog 550A-550B Geographic Readings in Geography (offered every semester on an individual basis by arrangement made through the chairman of the department.) (Gault) 2 s.h.

550A consists of wide readings in the field of geography. Emphasis is upon the classics in the field. Study will be individual and will help the student become critical in his reading and study.

550B consists of reading upon a particular topic or region. Emphasis is upon knowledge and understanding of a selected area of study. Study will be individual and will help the student become more expert with a small area of learning.

Geog 551 Professional Problems in Geographic Education 2 s.h.

Classroom problems and discussions centered about "New Viewpoints in Geography" constitute the core of this course. Individual reports, group discussion and research will constitute the principal methods of presentation. (Anderzhon)

Geog 552 Seminar in World Resources 2 s.h.

World resource exploitation and utilization of the agricultural, mineral, forestry, and fishery industries are treated. Problems, such as energy utilization, food distribution, population growth, regional planning, factory location, conservation measures, and foreign trade, are considered. (Weber)

Geog 554 Physiography of United States 2 s.h.

This course presents a detailed study of the landforms and surface waters of the United States. The origin, classification, and structure of mountains, plains, hills, coast lines, rivers, lakes are discussed as well as the agents causing their birth and subsequent modification, agent such as glaciers, stream erosion, wind abrasion, tides and ocean waves. (Payne)

Geog 555 Cartography for Thesis Writing 2 s.h.

This course develops an ability to compile maps and diagrams for the illustration of place location, areal distribution, and statistical data in thesis or professional papers. Special maps, charts, and diagrams will be considered as required by the individual student. No prerequisite. (Payne)

Geog 556 Maps and Photographic Interpretation 2 s.h.

Maps and aerial photographs enable the geographer to correctly grasp the spatial perspective of the landscape; they enable him to garner much geologic, economic, land use, transportation, strategic information quickly without costly, lengthy field trips. The course is designed to develop skill in extracting the foregoing information and to synthesize these data into geographical relationships. (Payne)

Geog 557 Geographic Research 2 s.h.

Research in the area of geographical knowledge embraces field and bibliographical studies as well as introduction to authoritative sources. It includes familiarization with geographical concepts, geographic techniques, laboratory and field procedures, and utilization of instruments and devices. Prerequisite: Ed 515 or six hours of graduate work in geography. (Winslow)

Geog 563 Field Techniques in Geography 2 s.h.

Field technology is discussed and evaluated. The use of field tools and techniques are used in the study of a specific area. Emphasis is upon skill and interpretation of aerial patterns of geographic phenomena. (Winslow)

Geog 564 Regional Field Studies 3-6 s.h.

Students are taken into the field to observe and to analyze the geographical relationships which exist between various physical and cultural phenomena. Various regions of North America to be visited are selected on the basis of landscape diversity. Study may emphasize either physical or cultural geography and the student should contact the Geography Department prior to the semester of enrollment as to the exact region to be studied and the costs involved. (Staff)

Geog 565 Aerospace Workshop 2 s.h.

This workshop will be conducted as a seminar with a number of visiting aerospace authorities. It treats of the atmosphere and space environment; history of flight and flight problems; satellites and space probes; manned orbital and space exploration projects; propulsion, communication, and other systems. Problems of teaching and bibliography at the various elementary and secondary levels will be considered. An indoctrination flight in a small craft and field trips to air age installations and projects fortify learning. (Winslow)

HEALTH - PHYSICAL EDUCATION

John Chellman, Chairman

Owen J. Dougherty

HPE 521 Advanced Seminar in Health and Safety 2 s.h.

This course provides the student with current health and safety information and defines its relation to the needs of the school child, the home, the community, and the school. It emphasizes the application of health and safety instruction to the modern principles of education, and provides the student with concrete materials to help plan and implement an effective health and safety instructional program. The course is geared toward the particular health and safety problems that relate to the students in the class. (Chellman)

HPE 530 Workshop in Community School Health Education 2 s.h.

This workshop is concerned with school, community and public health as they relate to the interests of the workshop participants. Areas studied include mental health, nutrition, dental health, physical education, health services, environmental health, changing health patterns and health statistics. Teaching methods, special projects, consultations, visitations, discussions and sources of information and materials will be considered.

Credit for this workshop may be used in the general studies area of the elementary curriculum and, subject to the approval of the department chairman or program advisor, as an elective in all other programs. (Chellman, Daugherty)

HOME ECONOMICS**HE 521 Problems in Family Living 2 s.h.**

Transportation, communication, and technological advances with labor saving and other devices are bringing so many possibilities and changes to the home that it is necessary constantly to challenge the home's adjustment. The course will utilize knowledge and research from science, medicine, technology, sociology, economics, art and psychology in being better able to: provide food, shelter, clothing, utilize time, energy, and material resources; and increase day to day satisfactions in living. Seminars and the problem solving method will be used. (Rhodes)

MATHEMATICS

James E. McKinley, Chairman

Ida Z. Arms
Edwin W. Bailey

Doyle McBride
Carl P. Oakes
Glen W. Olsen

Mildred Reigh
Dale Shafer
William R. Smith
Anna T. Wink

A candidate for the Master of Education Degree with a major in Mathematics must have acceptable undergraduate credit in Mathematics of at least 24 hours. He will complete thirty hours of graduate work in accordance with the requirements indicated and with his adviser, choose the electives best suited to his needs. He should begin work on a topic for a research project or thesis soon after he is accepted as a candidate for the degree.

Math 501 Digital Computer Programming (FORTRAN) 2 s.h.

Principles of programming electronic digital computers; development of programs in the FORTRAN language; compilation and execution on College computer. (Elective—does not apply toward minimum requirements for concentration in Mathematics.) (Wink)

Math 502 Digital Computers and Compiler Systems 2 s.h.

Development of digital computers; description of present day computers and the symbolic programming and compiler systems available for program development. (Elective—does not apply toward minimum requirements for concentration in Mathematics.) Prerequisite: Math 501. (Wink)

Math 503 Seminar: Computer Applications in Research 2 s.h.

Description of general techniques to facilitate processing of research data on a digital computer; special attention to individual research problems of class members. (Elective—does not apply toward minimum requirements for concentration in Mathematics.) (Wink)

**Math 510 Seminar in Mathematics I
(Junior High School Mathematics) 2 s.h.**

This course will acquaint the student with recommended curricula for the 7th, 8th, and 9th grades in Mathematics. Emphasis will be placed on programs for the slow, the average, and the gifted learners. Students will work on individual projects. Prerequisite: Permission of instructor. (Gibson, Reigh)

**Math 511 Seminar in Mathematics II
(Senior High School Mathematics) 2 s.h.**

This seminar will acquaint the student with recommended curricula for the 10th, 11th, and 12th grades in Mathematics. Emphasis will be placed on updating curricula. Special attention will be given to teaching topics of equations, inequalities, sets, functions, relations, and a modern approach to the teaching of geometry and trigonometry at the secondary school level. Prerequisite: Permission of instructor. (Arms, Gibson)

Math 521 Basic Concepts in Mathematics 2 s.h.

This course aims to develop an understanding of mathematics as a system of thought and will include such topics as kinds of number, scales of notation, the nature of arithmetic operations, basic principles of general numbers and measurements, the history and development of number and some of the contributions to our civilization, and elementary discussions of mathematics developed in the past one hundred years. (Open only to non-mathematics majors.) (Staff)

Math 526 Fundamental Concepts of Analysis 2 s.h.

This course will examine critically some of the fundamental ideas and techniques of proof of mathematical analysis which should precede any rigorous treatment of calculus, topology, or complex variables. Concepts studied will include limits, derivatives, and integrals as well as the structure of the real number system, completeness, and the construction of the irrational numbers from the rational numbers. (Olsen, Arms)

Math 529-530 Differential Equations I, II 4 s.h.

These courses deal primarily with the solution of differential equations of the first and second order and linear equations with constant coefficients, with applications to geometry and physics. (Oakes)

Students with a satisfactory background in Differential Equations may take Math 530 and omit Math 529.

Math 531-532 Advanced Calculus I, II 4 s.h.

These courses are the basis for advanced analysis. Topics include structure of the real number system, functions, sequences, limits, continuity, differentiation, integration, infinite series of constants, and power series. (Staff)

Math 533-534 Functions of a Complex Variable I, II**4 s.h.**

These courses include a study of the properties of complex numbers and functions, including: analytic and elementary functions, the Cauchy-Goursat integral theorem, contour integrals, power series, residues and poles, conformal mappings, Schwarz-Christoffel transformation, and analytic continuation. Prerequisite: Math 531. (Olsen)

Math 535-536 Functions of a Real Variable I, II**4 s.h.**

These courses develop further the topics of Math 531 and 532. Point sets, uniform continuity, Stieltjes integration, uniform convergence, and functions of several variables are among the topics discussed. Prerequisite: Math 532. (Olsen, Smith)

Math 539-540 Infinite Series I, II**4 s.h.**

A development of the theory of the convergence of series. Among the topics considered are: sequences; series of positive, arbitrary, and variable terms; double series, power series, types of convergence and the associated operations with series. Prerequisite: Math 532. (Crooks, McBride)

Math 543-544 Vector Analysis I, II**4 s.h.**

These courses will include the algebra and calculus of vectors with applications. (Staff)

Math 552 Number Theory**2 s.h.**

Topics considered will include: elementary properties of integers, Euclidean algorithm, Prime Numbers, Divisibility, Congruences, Residues and Diophantine equations. (Olsen, Smith)

Math 560 Foundations of Algebra**2 s.h.**

This course is designed to acquaint the student with the axiomatic structure of algebra. It includes an introduction to the theories of groups, rings, integral domains, and fields. Mathematical models for these theories are taken from the systems of natural numbers, integers, rational numbers, real numbers, complex numbers, finite arithmetic and vector spaces. Prerequisite: Permission of the instructor. (Staff)

Math 561-562 Modern Algebra I, II**4 s.h.**

This course is designed to continue the study of the axiomatic structure of algebra to which the student has been introduced in previous courses. This will consist of an intensive study of the properties of groups, rings, ideals, integral domains and fields. Vectors and vector spaces, the theory of matrices and linear transformations, linear spaces and linear and bi-linear forms will be studied. Prerequisite: Math 560 or permission of the instructor. (Arms, Gibson)

Math 563-564 Linear Algebra I, II**4 s.h.**

Theory of vector spaces and linear transformations. Matrices and determinants. Introduction to linear algebras. Prerequisite: Math 561. (Smith, Crooks, Arms)

Math 565 Theory of Groups**2 s.h.**

Abstract group theory with emphasis on finite groups, quotient groups as a basis for Galois Theory, derived groups, nilpotence, extension, and products will be considered. Prerequisite: Math 561. (Staff)

Math 570 Point Set Theory**2 s.h.**

This course is a study of the basic concepts of set theory. The course includes a brief discussion of logic and proof followed by the essentials of set theory, the set approach to relations and functions, finite and infinite sets, and cardinal and ordinal numbers. This course serves as a partial basis for advanced courses. (Olsen, Smith)

Math 571-572 Modern Geometry I and II 4 s.h.

A systematic analysis of geometry through a study of axiomatic, synthetic and analytic projective geometry. Affine, Euclidean, and non-Euclidean geometries are obtained by successive restrictions of projective transformations. (Gibson)

Math 573 Topology 2 s.h.

An introduction to point set topology and those properties of topological spaces invariant under homeomorphisms such as compactness, connectedness, etc. (Smith)

Math 575-576 Projective Geometry I, II 4 s.h.

Discussions will concern: projection and section, ideal elements, projectively related forms, harmonic sets and resulting metric properties, polarity, involution, and conic sections from a projective standpoint. (Smith, Olsen)

Math 580 Logic 2 s.h.

An introduction to symbolic logic, including quantification theory, and its value in determining the validity of mathematical arguments. (Smith)

Math 581 Mathematical Statistics 2 s.h.

The theory of modern statistical analysis will be developed and used in the solution of practical problems from the fields of education and industry. The major areas of study will be: distribution functions, sampling theory, point estimation, and hypothesis testing. A knowledge of differential and integral calculus is requisite. (Crooks, Smith)

Math 582 Theory of Probability 2 s.h.

This course deals with the basic concepts of probability theory with emphasis on practical applications. Topics include: the theory of permutations and combinations, distribution functions, Bernoulli's and Bayes' theorems, and the normal and Poisson distributions. Prerequisite: Differential and Integral Calculus. (Crooks, Smith)

MUSIC

Harold S. Orendorff, Chairman

William R. Becker	Charles A. Davis	Fedor Kabalin
Robert E. Bernat	Daniel DiCiccio	C. David McNaughton
Wallis D. Braman	Gladys Dunkelberger	Russell C. Nelson
Robert W. Burggraf	Olive M. Fornear	Clel T. Silvey
Donald J. Caldwell	Walter Golz	Elizabeth D. Stewart
Catherine C. Carl	Arvilla T. Harrold	Lawrence C. Stitt
	Thomas J. Hughes	

Mus 501 Advanced Choral Conducting 2 s.h.

An evaluation of each individual's conducting technique will be made and developmental procedures introduced. Material for this process will include the large choral works with and without accompaniment. The student will be expected to further develop skills in reading score. (Davis)

Mus 502 Advanced Instrumental Conducting 2 s.h.

An intensive study of larger instrumental works will be developed especially treating the specific conducting techniques necessary to the successful performance of these compositions. The skill development of each individual will be stressed. (McNaughton)

Mus 503 Music Literature of the Baroque Era 2 s.h.

A stylistic analysis of the period from Monteverdi through J. S. Bach and G. F. Handel. The chronological limitations of the course will be approximately from A. D. 1600 to 1750. Extensive use will be made of the scores and recordings as well as all live performance available in the area. (McNaughton)

Mus 504 Music Literature of the Eighteenth Century 2 s.h.

An intensive study of the development of standard musical forms and the modern orchestra. The beginning of the period to be considered is marked by the Mannheim School, continues through Haydn and Mozart, and concludes with early Beethoven. (Carl)

Mus 505 Music Literature of the Early Romantic Era 2 s.h.

A detailed study of representative compositions and composers from the later works of Beethoven through the Lieder, changing orchestral styles and the romantic opera. (Bruggraf)

Mus 506 Music Literature of the Late Romantic Era 2 s.h.

A careful consideration of selected works of the latter part of the Nineteenth Century including the Music Drama, the symphonic poem, trends, and style as they emerged. (Burggraf)

Mus 507 Music Literature Since 1900 2 s.h.

A study of the main currents of musical thought and an analysis of trends and styles since the turn of the century with particular reference to selected compositions of Prokofieff, Stravinsky, Milhaud, Bartok, Hindemith, Schoenberg, Shostakovitch, et al. (Bernat)

Mus 511 Composition 2 s.h.

Composition of music in the various song forms through the rondos and the larger sonata allegro form. The student will be guided in his compositional attempts by careful analysis of similar forms of major composers. Instruction will be highly individualized as to the forms attempted and will depend considerably on the personal interest of the student. (Staff)

Mus 512 Advanced Orchestration 2 s.h.

Consideration will be given to the problems of scoring for the full symphony orchestra as well as the string orchestra and the chamber orchestra. Students will be expected to produce a full score and orchestral parts so that the orchestration may be tested by actual playing by the College Symphony. (McNaughton)

Mus 513 Advanced Band Scoring 2 s.h.

The problems of scoring for the modern concert band will be considered in detail. Actual scoring for the full symphonic band will be one of the major projects of the course. In addition, the problems of scoring for the brass band, the woodwind choir, and the percussion ensemble will also be considered. Scores and band parts for all projects will be produced by the students for an actual test playing by the College Symphonic Band. (McNaughton, Davis)

Mus 514 Advanced Choral Arranging 2 s.h.

Four-part writing for chorus will be reviewed. Five, six, seven, and eight-part writing will comprise the large part of the course. Special consideration will be given to the problem of writing for men's voices and for women's voices. All projects of the class will be duplicated in full choral score for actual test performance by one of the major vocal groups of the college. (Davis)

Mus 515 Canon, Double Counterpoint and Fugue 2 s.h.

The application of contrapuntal techniques through analysis and creative writing. Included will be the study and writing of two- and three-voice canons; two- and three-part inventions; and two-, three-, and four-voice fugues. (Staff)

Mus 516 Form and Analysis 2 s.h.

A study of representative compositions of various periods, with emphasis on formal harmonic and stylistic analysis. The student will develop the basic analytical techniques necessary for the analysis of music of any period. (Staff)

Mus 521 Music Literature and Materials 2 s.h.
(see Elementary Education Program)

The purpose of this course is to further enhance the musical background of the elementary teacher through acquaintance with suitable literature and materials. (Staff)

Mus 530 Music Criticism 2 s.h.

Consideration of the problems involved in evaluating musical performance of many levels. A study of various approaches to critical evaluation of musical performance. Several detailed procedures of approaching the adjudication of musical groups of various levels will be developed. (Staff)

Mus 531 Administrative Problems in Music Education 2 s.h.

A review of the conventional administrative organization of music education in the public schools. The role of the music director, the music specialist, the consultant, and the music resource teacher will be carefully defined. Consideration will be given to the problems of scheduling in the public school. Current issues concerned with music education and public education in general will be considered, including curriculum development. (Orendorff)

Mus 532 Seminar in Music Education 2 s.h.

There will be a considerable amount of freedom in the development of this course. The content each time it is offered will be governed by the specific needs of the students programming the course. These needs will be of two general classes: (1) Strengthening areas of weakness, (2) exploring further areas of interest. (Orendorff)

Mus 533 Comparative Choral Methods 2 s.h.

Materials and procedures of the preparation of vocal groups for public performance. Several accepted, yet contrasting, approaches will be considered, ranging from the Christiansen technique to that of John Finley Williamson. Special attention will be given to program building. (Nelson)

Mus 534 Comparative Instrumental Methods 2 s.h.

Consideration will be given to those materials and procedures which have been proven by actual use in the United States. These various approaches will be compared and given a critical analysis by the class. Rehearsal techniques, efficient use of time and basic motivation will be stressed. The development of interesting programs will be considered. (Orendorff, Becker)

Mus 535 Psychology of Music Education 2 s.h.

An analysis of the latest evidence produced by the field of psychology in music education as applied in actual classroom situations. A review of the latest developments in psychological research relating to specific education problems will be included. (Staff)

Mus 536 Church Music 2 s.h.

The liturgies of all conventional church denominations will be analyzed from the standpoint of the duties of the church choir conductor. Materials and procedures applicable to volunteer groups will be reviewed and analyzed. The problem of rehearsal attendance and basic motivation will be considered. The course will also include recruitment, budgetary problems, and basic relationships with the administration of the church or synagogue involved. (Staff)

Mus 537 Techniques of the Marching Band 2 s.h.

The theory and practical application of the fundamentals of precision drill will be studied in detail. Also, this course deals with building "half-time shows," materials and instrumentation of the marching band. (DiCicco)

Mus 540-591 Applied Music**1 s.h. each**

The following courses will be taught in the form of private lessons geared to the individual student and aiming at maximum progress of each student, depending on the background of the student and the time available:

- Mus 540, 541, 542, 543 Private Piano (Staff)**
- Mus 544, 545, 546, 547 Private Organ (Carl)**
- Mus 548, 549, 550, 551 Private Voice (Staff)**
- Mus 552, 553, 554, 555 Private Violin (Staff)**
- Mus 556, 557, 558, 559 Private Viola (Staff)**
- Mus 560, 561, 562, 563 Private Cello (Staff)**
- Mus 564, 565, 566, 567 Private Clarinet (Staff)**
- Mus 568, 569, 570, 571 Private Flute (Staff)**
- Mus 572, 573, 574, 575 Private Oboe (Staff)**
- Mus 576, 577, 578, 579 Private Bassoon (Staff)**
- Mus 580, 581, 582, 583 Private Trumpet (Staff)**
- Mus 584, 585, 586, 587 Private French Horn (Staff)**
- Mus 588, 589, 590, 591 Private Trombone or Baritone (Staff)**

PSYCHOLOGY

Stanley Lore, Chairman

Morton Morris, Chairman, Dept. of Special Education

See Education and Counselor Education

Psy 530 Psychology of Growth and Development**2 s.h.**

This course is designed to provide insight into how people grow and develop from infancy to old age. Maturation, learning, and their interrelationships are studied. Physical growth patterns are noted along with emotional, intellectual, and social development with implications for the school, community and home. (Snyder, Lore)

Psy 531 Psychology of the Exceptional Child**2 s.h.**

This course is designed to aid the student in meeting the needs of those children who deviate from the typical in areas of physical, mental, emotional, and educational developments. Consideration will be given to methods of instruction and curricular material. (Morris)

Psy 532 Studies in Pupil Adjustment**2 s.h.**

This course considers the problems of human adjustment in relation to causative factors. (Pre-school through adolescence and youth.) It stresses the dynamics of personal and interpersonal relationships and explores the role and function of the parent, the teacher and available specialists in remedial treatment. Case material will be used with direct application to specific problems. (Snyder)

Psy 533 The Psychology of Personality**2 s.h.**

A consideration of the varied approaches to the problem of understanding personality. The objective will be to give the student an overview of each of the methods of analyzing personality that has, over an extended period of time, withstood careful scrutiny and investigation. The course will undertake some measure of integration by indicating similarities among the various approaches. (Staff)

Psy 534 Abnormal Psychology 2 s.h.

Theories of pathological behavior with reference to clinical and experimental data. (Staff)

Psy 535 Differential Psychology 2 s.h.

In this course stress is placed upon a study of individual differences and the impact of these differences upon learning rates, interests, and personality. (Staff)

Psy 536 Psychology of Learning 2 s.h.

In this course learning theories will be explored in terms of breadth, their historical development, and for their impact upon educational philosophy and educational practices. (Staff)

Psy 538 Psychology of the Gifted Child 2 s.h.

Characteristics of the bright, fast-learning child will be explored along with implications for education. Emphasis will also be given to measurement techniques, Motivational factors, and personality dynamics. (Morris)

Psy 539 Psychology of the Mentally Retarded Child 2 s.h.

Characteristics of the slow learner and of the non-educable child will be explored along with implications for education. Emphasis will also be given to measurement techniques, motivational factors and personality dynamics. (Morris)

Psy 540 Advanced Mental Hygiene 2 s.h.

This course is designed to offer a comprehensive treatment of the basic principles of mental hygiene. Its major concern is the normal, reasonably well-adjusted individual. Special emphasis will be given to the influence of activities carried on in the home, the school, and the community in an effort to stress the importance of prevention in the maintenance of mental health. (Wilson, Staff)

Psy 541 Individual Psychometric Techniques: The Binet Scales 2 s.h.

Historical development, administration, scoring, and interpretation of the Stanford-Binet intelligence tests. Enrollment in this course will necessarily be limited, with priority assigned to advanced graduate students pursuing a regular program of study at this college. Programming will be by special arrangement. Prerequisite: Guid. 534 or its equivalent, and consent of the instructor and chairman of the program. (Staff)

Psy 542 Individual Psychometric Techniques: The Wechsler Scales 2 s.h.

Historical development, administration, scoring, and interpretation of the Wechsler intelligence tests. Enrollment in this course will necessarily be limited, with priority assigned to advanced graduate students pursuing a regular program of study at this college. Programming will be by special arrangement. Prerequisites: Guid. 534 or its equivalent, and consent of the instructor and chairman of the department. (Staff)

Psy 543 Introduction to Projective Techniques 2 s.h.

This course is primarily concerned with the rationale, structure and theoretical background of projective devices. Necessary prerequisites would include background in personality theory and tests and measurements. (Staff)

Psy 544 Advanced Learning Theories 2 s.h.

Emphasis in this course is given to major learning theories. Atomistic and field theories are examined individually but special stress is given to eclectic contributions. (Staff)

Psy 561 Advanced Psychological Practicum**1-4 s.h.**

Structured to provide the graduate student, qualified in either psychology or guidance, with a working experience in a clinical situation. The student will participate, under supervision, in educational, vocational, and personal advisement. Registration only with permission of the Director of the Psychological Clinic. (Staff)

Psy 565 Measurement of Interests and Personality**2 s.h.**

This course is concerned with an intensive study of selected interest inventories which illustrate different techniques of measurement and with the various instruments used to measure nonintellectual aspects of behavior, as for example, emotional adjustment, social relations, motivation, attitudes, and the like. Projective techniques will not be included in the study of "personality tests." Prerequisite: Guid. 534. (Staff)

SCIENCE

Dwight E. Sollberger, Coordinator

Due to the rapidly expanding role of Science in our technological society, secondary schools are finding it necessary to increase their offerings in the various fields of science. This in turn requires teachers with strong backgrounds of knowledge, as well as a greater number of teachers. The various subject-matter divisions of the science area recognize the important role of Science in modern society, and have planned the graduate programs in their respective areas in such a way as to provide maximum opportunities for all science teachers to improve themselves scholastically and in teaching techniques.

Five areas of concentration are available to the graduate student. These are Biology, Physical Science, Chemistry, General Science and Elementary Science. Students who have specialized in any of these areas in undergraduate school will find a wide offering of courses in these content areas at the graduate level. In many instances teachers in one of these areas may wish to take courses in the alternate field. Provision is made for such contingencies. Attention is called to the opportunity for elementary teachers to take courses specifically designed to improve their content and skill in science so that they may contribute to the scientific backgrounds of children at the elementary level.

At the time he is admitted to the graduate school, each student is assigned a faculty adviser by the chairman of the department. With the approval of the adviser, a candidate will select a program which will make a maximum contribution to the development of the candidate in his chosen field. The adviser will also assist the student in choosing, preparing, and presenting his thesis or research project.

In certain courses in the science department, additional laboratory time may be required beyond the regularly scheduled periods. Students who select a four-credit sequence are required to complete the sequence.

Sci 572 Experimental Techniques in Chemistry and Physics**2 s.h.**

Emphasis will be placed on scholarly experience in experimentation, observation, and application of scientific concepts. Classroom and lecture demonstrations will be prepared, presented, and evaluated by students and instructor. Special attention will be given to the development of new ideas and new ways of presenting scientific principles. Prerequisites: Chemistry I, II, Physics I, II. (Bordas)

Sci 573-574 Computations in Physics and Chemistry**4 s.h.**

This course is designed to help the teacher of physics and chemistry, who has a limited background in mathematics, to become more skillful in the solution of problems usually encountered in physics and chemistry courses. It should also provide him with a more adequate background to deal with the problems in his courses in the graduate program. (Mathematics Staff)

BIOLOGY DEPARTMENT

Donald E. Hoffmaster, Chairman

Willis H. Bell
Walter W. Gallati
Francis W. Liegey
Robert Merritt
Charles D. Reese

Arthur G. Shields
Dwight E. Sollberger
Martin L. Stapleton
Richard M. Strawcutter
Richard F. Waechter

Cyril J. Zenisek

Biol 533 Biological Literature

2 s.h.

The purpose of this course is to give the graduate student an opportunity to become more familiar with biological literature and to develop skill in the use of the literature. Periodicals, encyclopedias, handbooks, abstracting journals and other books dealing with the various divisions of biology will be studied. Students are required to conduct a literature search on a selected topic. (Sollberger)

Biol 541, 542 Comparative Anatomy I, II

4 s.h.

This course is a comparative study of the structure of representatives of the classes of vertebrates. The shark, necturus, and cat will be dissected. Three hours per week throughout the year. Prerequisites: Zoology I, II. (Sollberger, Strawcutter)

Biol 543, 544 Embryology I, II

4 s.h.

A comprehensive course tracing the maturation of gametes, fertilization, cleavage, differentiation, organogenesis, and development in the vertebrates. Major emphasis will be placed on such phenomena in the chick, with correlative work on the frog and pig. A two-semester course with both lecture and laboratory work that meets three hours a week. Prerequisites: Zoology I, II, Comparative Anatomy is desirable. (Strawcutter, Gallati)

Biol 545 Microtechnique

2 s.h.

A course designed to acquaint the student with the procedures involved in the production of microscope slides. Techniques of preparing whole mounts, microtome sections and serial sections will be covered. Both plant and animal materials will be used. A one-semester course that will meet three hours per week, at least two of which will be spent in independent slide preparation. Prerequisites: Botany I, II, Zoology I, II. (Bell, Strawcutter)

Biol 551, 552 Taxonomy of Plants I, II

4 s.h.

This course includes the collection, identification, and classification of vascular plant species with special emphasis on family characteristics and phylogeny. Three hours per week throughout the year. Prerequisite: Botany I, II. (Shields)

Biol 553 Principle of Animal Taxonomy

2 s.h.

This course is a study of the classification system and its application to the identification of animals. The basic principles of taxonomy, rules of nomenclature, a synoptic history of classification and the "old" and "new" taxonomy will be included. A field study or original library project on some taxonomy problem is required. (Gallati)

Biol 555 Principles of Plant and Animal Distribution

2 s.h.

Consideration will be given to the scientific principles underlying the geographic distribution of plants and animals. The factors causing speciation, the centers of origin, and the effects of climate, barriers, and geologic age on migration and range will be studied. Prerequisites: Botany I, II, Zoology I, II. (Bell)

Biol 561 Plant Structure**2 s.h.**

The anatomy of typical representatives of the vascular plants will be studied. Consideration will be given to the variations in structure and development of root, stem, leaf, and flower among various plant families. Prerequisites: Botany I, II. (Bell)

Biol 562 Animal Physiology**2 s.h.**

Through lectures and laboratory work, students will consider the events of digestion, molecular transport of nutrients and wastes, gaseous exchange, excretion, muscular movement, and control by endocrines and nervous tissue. Prerequisites: Zoology I, II, Inorganic Chemistry I, II. (Liegey)

Biol 563 Physiology of Plants**2 s.h.**

Cell physiology including respiration, photosynthesis, fermentation, enzyme catalysis, auxins, and membrane phenomena will be stressed. Tropisms, mineral nutrition, water metabolism, and the translocation of solutes are additional areas of discussion and experimentation. (Shields)

Biol 564 Problems in Biology**2 s.h.**

The course offers the opportunity for a student to conduct a literature search combined with controlled experimentation on a limited biological problem. Each student will choose a problem of interest from a field previously studied and work in consultation with his instructor. Prerequisites: six hours of graduate work in Biology and consent of the department. (Staff)

Biol 565 Field Natural History**2 s.h.**

This course is designed for those high school biology teachers who wish to increase their knowledge of the biology of their surroundings, particularly those who have had limited opportunity for this type of work in their undergraduate programs. Field trips will be conducted to areas of interest in Western Pennsylvania. Each student will be required to work on a field problem which will be selected through consultation with the instructor. Prerequisites: Zoology I, II, and Botany I, II. (Staff)

Biol 566-567 Cellular Physiology I and II**4 s.h.**

A study of the fundamental activities of plants, animals and microorganisms. The activities considered include the following: nutrition, including in its broadest sense the uptake and preparation of food and oxygen, the release of energy and elimination of waste products; response to the environment; and growth and reproduction. (Liegey)

Biol 568 Demonstrations in Biology**2 s.h.**

Classroom and lecture demonstrations will be prepared and evaluated by students and instructors. The use of simple apparatus and easily obtained biological materials will be emphasized. (Hoffmaster)

Biol 569 Ecology**2 s.h.**

This course involves a consideration of the ecologic principles underlying the interrelationships of living things. Physical, biotic, and historical factors of the environment will be studied. Prerequisites: Botany I, II; Zoology I, II. (Zenisek)

Biol 572-573 General Bacteriology I, II**4 s.h.**

A course intended to acquaint the student with the structures and activities of bacteria. The morphology, classification and biochemical behavior of bacteria are studied. Emphasis is also placed on microorganisms in relation to health and disease. (Liegey)

Biol 574 Genetics**2 s.h.**

This course reviews the fundamental theories of heredity which have developed since the work of Mendel and more specifically since 1900. A survey of human inheritance with eugenics is included in the course. (Staff)

Biol 576 Radiation Biology

2 s.h.

Basic aspects of nuclear physics, the phenomena of radioactive isotopes and the biological effects of such isotopes. Concurrent laboratory work utilizing instruments for detection and measurement of radioactive nuclei used in biological experimentation. Two hours of lecture, three hours laboratory per week. Prerequisites: Two years of biology, Physics I, II; Chemistry I, II. Additional chemistry through organic and biological chemistry strongly recommended (Gallati)

CHEMISTRY DEPARTMENT

Paul R. Wunz, Chairman

Carl W. Bordas

Edward N. Brown

William Heard

Ronald L. Marks

Robert N. Moore

Donald Groff

William W. Hassler

Chem 546, 547 Biochemistry I, II

4 s.h.

An intensive study of the chemistry, metabolism, and functions of the major constituents of living matter. Three hours per week throughout the year. Prerequisites: Organic Chemistry I and II. (Staff)

Chem 548, 549 Physical Chemistry I, II

4 s.h.

First Semester: Gases, elementary thermodynamics, solutions. Other topics as time permits.

Second Semester: Electrochemistry, surface chemistry, chemical equilibrium, phase equilibrium, and/or other topics depending upon student interest and available time. Prerequisites: Two years of college chemistry, elementary calculus. Admission to either or both semesters only after conference with the instructor. (Brown)

Chem 565, 566 Advanced Inorganic Chemistry I, II

4 s.h.

Descriptive chemistry of selected elements and compounds. Interrelationship of atomic structure, chemical properties, and physical properties. Applications to experimental work. Prerequisites: Qualitative and Quantitative Chemistry or Qualitative and Physical Chemistry. (Marks)

Chem 573, 574 Advanced Organic Chemistry I, II

4 s.h.

A course in theoretical organic chemistry with emphasis on the mechanisms of the major types of organic reactions. Three hours per week throughout the year. Prerequisites: Organic Chemistry I and II. (Staff)

Geol 514 Crystallography

2 s.h.

This course is designed for the geologist, chemist, and physicist. Minerals are studied utilizing common field and X-Ray notation. External and internal morphology is examined. Stereographic projection techniques are applied. Prerequisites: Fundamentals of Mathematics, Geology I and first year college physics desirable. (Groff)

Geol 515 Mineralogy

2 s.h.

This course is a workshop in the study of and identification of minerals, the theory of mineral formation, and mineral relationships. Simple chemical and physical techniques of mineral identification shall be taught up to and eventually including X-Ray Analysis. Prerequisite: Mathematical Analysis and Geology I, also General Chemistry. (Groff)

Geol 516 Petrology

2 s.h.

This course is a study of rock phyla and their chemical and spatial relationships in the earth. Special attention is given to the genesis, mineral composition, and classification of the rock types. The ecology of igneous, sedimentary, and metamorphic rocks is studied in detail. Lecture and laboratory. (Groff)

Geol 535 Geomorphology**2 s.h.**

This course is designed for graduate students who wish to strengthen their background in geology. It provides a review of the agents modifying the surface of the earth and a map study laboratory for topographic map interpretation. (Groff)

Geol 570 Paleontology**2 s.h.**

This course is designed for majors from any field. It is a systematic study of the major forms found in the geologic fossil record. Guide fossils, patterns of evolution, and survival of certain species are studied in detail. (Groff)

PHYSICS DEPARTMENT

Richard E. Berry, Chairman

Daniel G. Reiber
Paul M. Waddell

Robert L. Woodard
Patsy E. Zitelli

Phys 531 Atomic Structure**2 s.h.**

This course includes a brief review of fundamentals of electricity and magnetism. Following this, the major topics are charged particles, atomic structure, electromagnetic radiation, waves and particles, electron configurations and atomic spectra. Prerequisites: General Physics, Mathematical Analysis. (Reiber)

Phys 567, 568 Analytical Mechanics I and II**4 s.h.**

The topics of Phys 567 are kinematics, particle dynamics, gravitation, free and forced harmonic motion. The treatment of these topics involves the use of vector methods and the differential and integral calculus. The topics of Phys 568 are the dynamics of rigid bodies, wave motion, and statics of particles and rigid bodies. (Reiber)

Phys 569, 570 Electricity and Magnetism I, II**4 s.h.**

Topics developed are D. C. and A. C. circuits including properties of circuit elements, electrostatics and magnetic fields, magnetic properties of materials, oscillating circuits and Maxwell's theory of electromagnetic radiation. Some elementary concepts of vector analysis are developed and used where they clarify the treatment. Extra time beyond the one period should be available some weeks for laboratory work and demonstration. Prerequisites: Physics I and II or the equivalent, mathematics through differential and integral calculus. (Waddell)

Phys 571 Advanced Physics Laboratory Practice**2 s.h.**

Study of selected topics in physics using advanced laboratory and mathematical techniques. (Reiber)

Astr 534 The Solar Family**2 s.h.**

This course is planned as a study of the characteristics and behavior of the planets and their satellites, asteroids, meteors, comets and other phenomena of the solar systems. One of the major topics will be to investigate and criticize several of the theories as to its origin. It will require some treatment of celestial mechanics, a topic which will be briefly reviewed as part of the course, but will not advance to a level which requires a background of calculus. (Woodard)

Astr 536 The Sidereal Universe**2 s.h.**

A study of the characteristics and classification of the stars, their assemblage in groups and galaxies, and their evolution. Techniques of gathering data are examined to gain an understanding of the role of the telescope, spectroscope, and photometer in astronomical research. Laboratory exercises and night observations are a part of the course. Credit will be given only to those for whom the course represents an area of study for which credit has not previously been recorded. (Woodard)

ELEMENTARY SCIENCE

This program leading to a Master of Education Degree in elementary science is designed to give elementary teachers depth and competency in the content areas of the physical and biological sciences. The sequence of the courses listed below will prepare the student to work as an elementary science resource person within his school or school district. These courses are not open to majors in Biology, Chemistry, and Physics.

ElSc 579 Quantitative Tools for Elementary Science 2 s.h.

The course is designed to help the elementary teacher become acquainted with and gain in proficiency in the quantitative aspects of science. The emphasis will be on practical problem solving related to typical laboratory data. Considerable time will be spent on instruments, instrument calibration, graphing, and graph interpretation (interpolation and extrapolation). The area under the curve idea and the meaning of slope on a graph will be explored extensively. Concentrated instruction in the use of the slide rule, use of logarithms and algebra, trigonometric functions, scientific notation and significant figures will be used as tools to achieve the above objectives. (Mathematics Staff)

ElSc 580, 581 Chemistry I, II 4 s.h.

The course is designed to help the elementary teacher become acquainted with chemistry as it is today. It approaches the study of chemistry through investigation. Unifying principles of chemistry will be developed placing emphasis on experimentation. No previous college chemistry is necessary as a prerequisite. Use of the slide rule and the necessary math will be taught as the course develops. It is to be a laboratory-centered course. It is planned that experiences be provided to furnish data for background in which principles and topics are discussed. The methodology employed will provide experiences that elementary teachers will find helpful in teaching science in the grades. (Heard)

ElSc 583, 584 Physics I, II 4 s.h.

These courses are designed to increase the elementary teacher's knowledge and understanding of the concepts, reasoning methods and experimental techniques of physics as a background for the teaching of that part of science in the elementary grades. The first semester will deal with mechanics, sound, heat, and the mechanical properties of matter; the second semester with electricity and magnetism, electrical properties of matter, light, and atomic and nuclear energy. It is not the purpose of these courses to list what physics should be taught in the elementary grades or how to teach it. The three-hour period each week will be devoted to lecture, class discussion and/or laboratory. (Waddell)

ElSc 586 Botany 2 s.h.

This laboratory course is structured in a manner that the flowering and non-flowering plants will be covered. Special emphasis will be placed upon the taxonomy, morphology and life processes of plants as they are related to work done in the elementary school. Three (3) hours of lecture and/or laboratory. (Shields, Hoffmaster)

ElSc 587 Zoology 2 s.h.

A laboratory course that provides a study of the vertebrates and invertebrates, their life processes, morphology and taxonomy as it relates to the elementary school. Three (3) hours of lecture and/or laboratory. (Merritt)

ElSc 588 Field Biology 4 s.h.

A laboratory course that will acquaint the elementary teacher with the biological environment outside of the classroom and will also provide a number of activities that are applicable to the elementary school. Four (4) hours of laboratory. (Summers only) (Merritt)

ElSc 589 Geology**2 s.h.**

A study of rocks and geologic formations as they are related to elementary science. Past history of the earth, as well as present day geologic phenomena are discussed. Field trips and laboratory work are part of the course. Two (2) hours of lecture and/or laboratory. (Groff)

ElSc 590 Meteorology**2 s.h.**

The fundamentals of weather and weather instruments are discussed. Familiarization with weather instruments, maps, and records, as well as activities applicable to elementary science are underscored throughout the course. Two (2) hours of lecture and/or laboratory. (Stapleton)

ElSc 591 Astronomy**2 s.h.**

The study of the constellations, members of the solar system, and other heavenly bodies will be part of the area of concentration. However, telescopes and space travel are included as they are related to science in the elementary school. Two (2) hours of lecture and/or laboratory. (Woodard)

ElSc 592 Elementary Science Curriculum**2 s.h.**

A course designed to come late in the graduate program when the graduate student will have an appreciation for discussions centered around the various approaches to the teaching of science in the elementary school. The study of texts that are being used in the elementary schools as well as the problems of curriculum construction are covered. When possible, demonstration classes will be taught by the instructor and students. Two (2) hours of class. (Waechter)

SOCIAL SCIENCE

Raymond L. Lee, Chairman

Clyde C. Gelbach
Richard F. Heiges
C. M. Johnson
Jane S. Mervine
Robert Morris

Esko E. Newhill
J. Merle Rife
John R. Sahli

Walter Shea
Bert A. Smith
Robert C. Vowels
Albert J. Wahl
Florence Wallace

The Master of Education Degree with a major in Social Science is designed to give secondary teachers greater depth and competency in the subject matter and research techniques of the social sciences. Preliminary to the selection of a thesis or project topic, the student must have completed Ed 515. Elements of Research, and have programmed a seminar in one social science division. If the student completes his research requirement in a given seminar, he may, with the permission of the department chairman, schedule additional seminars. Elements of Research must be scheduled early in the student's program since this course must precede election of a seminar.

SS 510 New Viewpoint in Social Science Instruction**2 s.h.**

Starting with the conclusions developed from recent research in the several social sciences, a study will be made of the curricular and instructional changes which have been proposed to close the gap between what we now know about human behavior and what is generally taught in social science courses. (Mervine)

SS 514 Research Methodologies in the Social Science**2 s.h.**

Selection of a research topic, techniques of locating and using source materials, the evaluation of evidence, the organization of the tested data, and the exposition of the tested data according to approved forms. Methodologies of value to students of politics, economics, or sociology will receive attention, in addition to those techniques usually treated in historiography. (Wahl)

SS 521 Contemporary American Issues**2 s.h.**

This course will be conducted in seminar fashion, centering its attention on one or two major contemporary American issues. Open only to non-majors in the Social Sciences. (Lee)

SS 531 Economic and Social History of Pennsylvania 2 s.h.

This course analyzes the economic and social background of Pennsylvania with emphasis on regional development. The interplay of such factors as industrialization and immigration on organizational movements will be studied through the problem approach. (Sahli)

SS 532 U.S.-British Commonwealth Relations 2 s.h.

Emphasis is placed on those aspects of United States and Commonwealth backgrounds and policies that aid mutual understanding and international accord in the modern world. (Gelbach)

SS 533 Social and Intellectual History of the United States 2 s.h.

An analysis of the cultural forces which have helped to shape modern America. Ways of living characteristic of certain periods will be studied, together with the more significant social-reform movements and their attendant systems of thought. (Wahl)

SS 541 Modern European Problems 2 s.h.

A course area that considers Europe from the economic, social, political, diplomatic, and cultural points of view. Attention is also given to specific problems and to the role of European powers in world affairs. (Rife)

SS 542 Contemporary Latin American Problems 2 s.h.

A study of the major cultural, economic, political, and related problems currently confronting the Latin American countries. (Johnson)

SS 543 Modern Asian-African Problems 2 s.h.

To understand better the nature and problems of a large portion of the non-Western world, the emphasis will be placed upon an analysis of contemporary, social, economic, and political developments in selected areas of Asia and Africa. (Wallace)

SS 544 History Seminar 2 s.h.

Area research in the discipline, considering various facets of a central problem. Prerequisite: Ed 515. (Staff)

SS 545 History of Russia 3 s.h.

A general survey of Russian history, culture and institutions. Special consideration is given to the study of those historical forces which were formative of the Revolution of 1917. Consideration is also given to post-Revolution Russia. May not be programmed by students with undergraduate credit for History of Russia. (Staff)

SS 546 History of Europe: 1815-1914 3 s.h.

A comprehensive study of the factors contributed by the European people in their national organization through their political, social, and economic activities. The understanding of these casual and inter-group relationships are basic to analysis and interpretations of the European world today. May not be programmed by students with undergraduate credit for History of Nineteenth Century Europe. (Staff)

SS 547 History of England II 3 s.h.

Britain since 1688 with a detailed study of the political and economic changes in England of the 18th, 19th, and 20th centuries will be covered. Particular stress will be given to the role of England in the imperialism of the age. May not be programmed by students with undergraduate credit for History of Modern England. (Staff)

SS 551 International Economics 2 s.h.

The nature of the world economy, international trade, international investment, current international institutions, and the foreign economic policy of the United States. Prerequisite: Principles of Economics. (Vowels)

SS 552 Comparative Economic Systems 2 s.h.

Basic economic issues in capitalism, socialism, communism, and fascism, and their relationships to political and social problems. Prerequisite: Principles of Economics. (Vowels)

SS 553 Contemporary Economic Issues 2 s.h.

Attention will be centered on problem areas of the domestic economy in this course. The primary focus in each semester will be determined by student-instructor interest. Prerequisite: Principles of Economics. (Vowels)

SS 554 Economics Seminar 2 s.h.

Area research in the discipline, considering various facets of a central problem. Prerequisite: Ed 515. (Vowels)

SS 555 Industrial Relations 3 s.h.

A study of the problems involved in the relations between the workers and management in a dynamic industrial society, and the economic aspects of the solutions proposed or attempted by labor, management, and the government. May not be programmed by students with undergraduate credit for Industrial Relations. (Staff)

SS 561 Social Policy Studies 2 s.h.

Focusing on several key issues on the American social scene, the class will examine the genesis of each problem, the present conflict of values inherent in the problem, the alternative proposals for its solution and the social consequences. Open only to non-majors in the Social Sciences. (Newhill)

SS 562 Deviant Behavior 2 s.h.

Crime as a social product. The social-individual analysis of criminal behavior, its treatment and prevention. Lectures, discussions, papers. Prerequisite: Principles of Sociology. (Newhill)

SS 563 Intergroup Relations 2 s.h.

Intergroup tensions and conflicts will be the subject of study with the major emphasis upon techniques of social action designed to reduce conflict. Prerequisite: Principles of Sociology. (Shea)

SS 564 Sociology Seminar 2 s.h.

Area research in the discipline, considering various facets of a central problem. Prerequisite: Ed 515. (Staff)

SS 571 Foreign Policy Studies 2 s.h.

This course considers selected problems in international affairs. Emphasis is placed on those problems and conflicts which have evolved in the post-war era, particularly as they relate to the position of the United States in World affairs. Specific problems are approached both in terms of the countries involved and in terms of the existing balance in the world economic, ideological, and power structure. (Mervine)

SS 572 Comparative Political Studies 2 s.h.

A course that considers the theory, structure, policies, and problems of selected foreign governments. Specific political ideas and governmental institutions are also analyzed from the comparative point of view. Special emphasis is placed on comparing and contrasting ideas and institutions with those of the United States. (Morris)

SS 573 Regional Political Studies 2 s.h.

Examines the structure and function of state, county, and municipal governments. It emphasizes the problems faced by government at these levels and seeks solutions to these problems. Pennsylvania governmental forms are stressed but are contrasted with those of other states. (Heiges)

SS 574 Political Science Seminar 2 s.h.

Area research in the discipline, considering various facets of a central problem. Prerequisite: Ed 515. (Smith)

SS 575 American Political Parties 3 s.h.

This course will trace historically the development of American Political Parties. Major emphasis will be placed on modern party developments since 1900. May not be programmed by students who have undergraduate credit for American Political Parties. (Staff)

SS 591 Studies in Anthropology 2 s.h.

A survey for graduate students of the evolution of man and culture, presenting the principal findings of physical and cultural anthropology. (Staff)

SS 592 Comparative Cultures 2 s.h.

A comparative study of selected examples of the world's cultures, from primitive hunters to modern industrial systems, as adaptations to their geographical and social habitats. (Staff)

SS 593 The Science of Culture 2 s.h.

An introduction to the major theories of cultural anthropology which are employed to account for the variety and structures of man's cultures. (Staff)

SS 594 Anthropology Seminar 2 s.h.

Area research in the discipline, considering various facets of a central problem. Prerequisite: Ed 515. (Staff)

SS 595 Pre History 2 s.h.

A survey of the evolution of man and culture in the Old and New World from the earliest fossil and cultural forms to the Archaic Civilizations. Prerequisite: Introduction to Anthropology. May not be programmed by students with undergraduate credit for Archaeology. (Staff)

SS 599 Contemporary Europe 6 s.h.

A study project devoted to the politics, economics, sociology, history, and culture of Europe through direct observation. (Staff)

PHILOSOPHY

Robert M. Hermann, Chairman

Graduate courses in Philosophy are primarily designed to provide elective study in an unfamiliar discipline for students teaching in the public schools. No graduate degree in Philosophy is offered. Degrees toward which credit in these courses may be used are indicated in the curriculum requirements sections of the catalog. Research or thesis work may be done in Philosophy with approval of the student's major program advisor.

Phil. 581 Problems in Logic 2 s.h.

An analysis of problems in meaning, of the formal structure of arguments, and of empirical inquiry-semantics, syntactics, and empirics. Fallacy. (Staff)

Phil. 582 Problems of Ethics 2 s.h.

The rational justification of moral judgements. Analysis of the function and meaning of moral language. (Staff)

Phil. 583 American Philosophic Thought 2 s.h.

A study of the more influential and original philosophies developed in America from the colonial period to the present. (Staff)

Phil. 584 Philosophy Seminar 2 s.h.

Area research in the discipline, considering various facets of a central problem. Students doing a thesis or research project in Philosophy will register for this course. (Staff)

INDEX

Academic Load	22
Admission to Graduate Study	
Procedure	15
Policy	15
When to Apply.....	18
Admission to Candidacy for the Degree	16
Advanced Graduate Study Beyond Master's Degree.....	25
Advisory System	43
Administration	2
Audio-Visual Center	14
Auditors	20
Calendar	3
Class Cancellation	17
Class Schedules	
Spring Semester, 1966	5
Pre-Summer Session, 1966	6
Main Summer Session, 1966.....	7
Post-Summer Session, 1966.....	9
Fall Semester, 1966.....	9
Spring Semester, 1967	11
College Catalog	13
Contemporary Europe, 1966	26
Counselor Education Certification	24
Counselorship for Graduate Students.....	19
Curriculum for Master of Education Degree	22
Curriculums	
Art	27
Business	28
Counselor Education	29
Elementary Education	30
English	31
Geography	32
Mathematics	33
Music	34
Biological Science	35

INDEX

Chemistry	36
Elementary Science	39
Physical Science	37
Science	38
Social Science	39
Department Chairmen	2
Department Instructions and Course Descriptions	
Art	41
Biology	71
Business	47
Chemistry	73
Counselor Education	50
Education	52
Elementary	53
Elementary Science	75
English	54
Foreign Languages	58
Geography	59
Health and Physical Education	62
Home Economics	62
Mathematics	62
Music	65
Physics	74
Philosophy	79
Psychology	68
Science	70
Social Science	76
Fees	20
Forms	
Application for Admission	83
Request for Transcript	85
Application for Admission to Candidacy	87
Request for Placement Service	89
Research Approval Form	91
Full-time Students	17

INDEX

Graduate Council	2
Graduation, (Application)	17
Graduate Record Examinations	16
History of the Graduate School	14
Housing Facilities	20
Internship in Elementary Education	25
Laboratory School	14
Library	13
Location	13
Objectives and Philosophy of Graduate Program.....	22
Part-time Students	17
Permanent Certification Requirements	18
Placement Service	14
Principal's Certification	23
Programming and Registration	22
Reading (Graduate Study)	23
Refunds	21
Research Requirement	41
Residence	17
Scholarships	18
Kappa Delta Pi	19
Scholarship Requirement	18
Semester Hours Required	16
Student Aid	19
Student Responsibility	23
Time Limit	17
Transfer of Credit	20
Transcript Service	21
Undergraduate Summer Program	19
Veterans	19
Withdrawal from Classes	21



